

The Boston Medical and Surgical Journal

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The Massachusetts Medical Society.

THE ANNUAL DISCOURSE.*

NOTE.—At an adjourned meeting of The Massachusetts Medical Society, held Oct. 3, 1860, it was Resolved, "That The Massachusetts Medical Society hereby declares that it does not consider itself as having endorsed or censured the opinions in former published Annual Discourses, nor will it hold itself responsible for any opinions or sentiments advanced in any future similar discourses."

Resolved, "That the Committee on Publications be directed to print a statement to that effect at the commencement of each Annual Discourse which may hereafter be published."

THE INTERNATIONAL MIND IN MEDICINE.

By KENDALL EMERSON, M.D., WORCESTER, MASS.

GARRISON's account of the life of Hippocrates informs us that he was born at Cos, studied at Athens, and spent much time in travel and practice among the cities of Thrace, Thessaly and Macedonia. Not content with the limitation of one environment, he sought the great centers of learning and civilization in that early epoch, and in the period of the Eighteenth Olympiad such journeyings were the full equivalent of the modern physician's post-graduate work abroad. Hence we may infer that the Father of Medicine himself felt his mind reaching forth for foreign contacts, realizing fully the derivation of the word education, a drawing out of the intellect by the attractive force of other greater intellects.

*Delivered before the Massachusetts Medical Society, June 15, 1922.

The physician is an intelligent traveler, for by his training he is specially fitted to sift the grist that comes to his mental mill and to winnow the good grain from the chaff. Not only is this true of his ability to judge medical matters but of his capacity to appraise other phases of strange civilizations as well. This quality is well exemplified in the writings of such keen observers of men and manners as Dr. David Livingston, Sir Frederick Treves or the inimitable Rabelais of an earlier period.

Formerly it was a tradition that the American medical student must complete his training in the clinics of the Old World. With the amazing improvement in our own educational facilities this worthy tradition no longer maintains. Standards of American medical training have forged ahead until our clinics are becoming world centers replacing those of Vienna and Berlin. A recent letter from an American surgeon studying in Vienna states that he has learned nothing new and that on the whole the local work compares unfavorably with our own in point of thoroughness in preparation and technique in execution. In these undoubted facts there lies a source of self-congratulation, and yet, withal, a menace lest we be led into an attitude of smugness and complacency which may work havoc with our breadth of medical vision and tend to limit rather than expand our mental outlook in dealing with the world-wide subject of health. The great leaders of our profession in America have been the keenest

exponents of the international mind in medicine; their university has been the world; and today we are profiting from the splendid structure which has been built upon the solid foundation of their contact with the medical thought and the medical masters of all countries.

Can we ever forget that it was the inspiration of two Boston physicians, received during a period of travel and study in the British Isles, which led to the founding of our Massachusetts General Hospital in this city? And is it possible to estimate the far-reaching effect on hospital development in America which may be traced directly to the inspiration of these two practical idealists, James Jackson and John C. Warren?

Successful achievement brings with it an increased burden of responsibility. It is our duty, therefore, from time to time, to examine our present record, to determine how we are bearing the load and what plans are making to enable us to carry on with success in the years ahead.

From very early times it has been recognized that health is a community, not an individual interest. The Hebraic law lays down rules of public health which indicate keen appreciation of this fact, rules which have been carried out without change for thousands of years, to the inestimable benefit of a very sturdily developed race. Now and again in past centuries such scourges as the plague in London or a virulent inroad of Asiatic cholera have aroused governments to make feeble efforts toward the protection of the community's welfare. Lack of knowledge as to the cause of disease and proper preventive methods brought scant success to these attempts. The embargo furnished the only practical means of protection and had its use when the world was composed of isolated and self-sufficient, small communities. As commerce increased and nations slowly took on relations of economic interdependence a prolonged embargo often carried with it depression in business and even actual suffering from the cutting off of imports. Then came the nineteenth century with its miracles in the field of transportation and communication. The small community no longer existed. Action in the remotest corner of the globe had its reaction throughout the world. Soon ministries of health sprang up in many countries, and the principle of the embargo slowly gave way before the theory of prevention at the source. Then followed the splendid stream of commissions for the study of local disease, sent out by the more advanced governments of the civilized world, the rapid development of health departments in those governments and the early recognition of the essential necessity for co-operation between the health services of all governments throughout the world.

It is beyond the scope of this paper to enter into an historical study of the development of these health services or to detail their international growth. To every physician with an outlook on things beyond the confines of his immediate practice such study will prove one of absorbing interest. Not the least striking phase of public health development is its amazingly rapid extension from the limited field of contagious diseases, and its profound invasion almost daily of new arenas of activity in the sphere of preventive and community medicine. This has been a simultaneous growth in all civilized nations, though it is not presumptuous for us to claim rather more than our fair share in hastening the progress of its development. There are several reasons why this should be the case. For years America has been the annual host of hundreds of thousands of strangers from every country of the globe, whose health immediately became a source of solicitude on our part. When it is realized that probably not over ten per cent. of any nation is highly adapted physically and mentally for pioneer life, it is evident that in the problem of immigration alone our health service encountered a colossal task, particularly when we reflect that our quota doubtless springs chiefly from the other 90 per cent. and that the principle of selection at the source has never been applied. Furthermore, America has possessed the means and the energy for development more fully than less favored nations where overcrowding, poverty and ignorance render progress far more difficult. One finds throughout the countries of Eastern Europe a surprising elaboration of paper plans for serving the public in matters of health and sanitation. One often looks in vain for the practical realization of those plans. In one country under the direction of a most able minister of health, an idealist and a scholar, I found a completely formulated plan for the care of the nation's tubercular patients, including preventoria, instructional classes, clinics, sanatoria and hospitals for the hopelessly advanced cases. Geographically, the country was admirably covered. Yet when an effort was made to see the scheme in action the pathetic fact was brought out too clearly that the fight was being waged on paper only and that far too large an appropriation for that alone was being spent on maintaining a perfectly running central bureau, while practically no assistance reached the unfortunate victims of the disease.

But even such instances as this, of which there are admittedly many in Europe, have their encouraging side. For such elaborate plans give evidence of close familiarity with similar organization in other countries where practical accomplishment has been achieved as well. The medical libraries of these countries

are well stocked with literature embracing the best thought in medical advance throughout the world; the first question always asked the visitor in the days immediately following the war was how best and most quickly to reestablish exchanges with current American publications.

Furthermore, many examples may be cited of extraordinary alertness for foreign contacts among nations often thought of as retarded or reactionary. A case in point was observed in the new Republic of Poland. A few months after the signing of peace I saw on the wall of the new and excellently installed public health laboratory a map of the world, on which were pinned the familiar little colored flags indicating the incidence of epidemics in all countries. Though, through national poverty, the laboratory lacked in many of the humblest details of equipment, the director's mind was already reasserting its international instincts, and one could see at a glance what epidemics were, at the moment, afflicting Singapore, Moscow or Havana. A visit to this same laboratory a year later disclosed amazing progress in the development of the laboratory facilities. The director was at that time manufacturing standard typhoid vaccine on a large scale at a price so many times cheaper than it could be made at the Paris Pasteur Institute that he had captured the international market in Eastern Europe and was shipping vaccine to all the countries from the Baltic to the Black Sea.

In remote Lemberg, a city which we think of as almost a frontier post, Dr. Groer, year before last, organized in his children's hospital the first training school for nurses on the Continent which gives a three-year course of graduated instruction modelled along American lines and turning out a product hitherto unknown in Europe, a nurse comparable in her attainment to those educated in our American training schools. Only by thorough knowledge of the value of the American standard by an open-minded study of our results could this physician have developed the faith to struggle against the reactionary Continental attitude toward the nursing problem. Since that time the presence of so many able American trained nurses in Eastern Europe has vastly aided in allaying prejudice, and at the moment three additional nurses' training schools have been organized there under the direction of American nurses. This is a little known bit of American enterprise in international medicine for which Miss Alice Fitzgerald of the League of Red Cross Societies and Miss Helen Scott Hay of the American Red Cross should receive far more credit than has been their reward up to the present.

In Bucharest, Dr. Minovici, former president of the International Medico-Legal Society and

doyen of the University Medical School, has by a most magnificent effort established a remarkably complete municipal morgue, with autopsy rooms, amphitheatres and medico-legal museum vastly superior to any city plant I have seen in this country or abroad. During the German occupation of Roumania, the Teutonic medical officers were so impressed by the efficiency of this plant that they themselves added several autopsy tables and made it a center of medico-legal scientific research. To be sure, fortune has favored the good doctor in his work, for, if I recollect aright, he told me that there were no less than three deaths per day by criminal violence in the little city of Bucharest, which furnished him ample clinical material.

In 1919 I saw Professor X at work in his physiological laboratory at the University of Tomsk, tucked away in the very heart of devastated and riotous Siberia. Though stripped of most of his apparatus by Bolshevik ruthlessness he showed us much excellent work in progress made possible by cunning improvisation. Among other experiments I recall a dog with gastric fistula from which the Professor was demonstrating and pursuing his researches. It is not necessary to multiply scattered incidents of this nature to demonstrate that one must look beyond the great world famous clinics to realize the extent to which medical knowledge is universal knowledge, and to appreciate the ripeness of the field for spreading still further international contacts.

And now turning to our own record, how far have we kept pace with our duty in this essential development? The answer cannot fail to fill us with a fair measure of satisfaction. It is only necessary to allude to the historic achievements in our fight against malaria or to the conquest of yellow fever through the sacrifice of American martyrs to scientific research. Perhaps through the glory thus honorably won Mr. Rockefeller was largely inspired to make possible further victories. In 1909 he organized and financed a Sanitary Commission to study hookworm disease in our Southern States. Wickliffe Rose, gathering statistics during the preliminary investigation, demonstrated that the malady, far from being localized, was a world problem belting the earth for a strip 30 degrees on either side of the equator and including a region inhabited by upward of a billion people. No sooner had means been devised for the correction of our own small fraction of the problem than ministries of health in many lands sought help and counsel from the "International Health Commission," which grew out of the original Sanitary Commission. And witness into what varied fields of international medicine the Rockefeller Foundation has since penetrated:

the pneumonic plague in China, tuberculosis in France, and lately the establishment of a modern medical school in Peking for the spread through trained native physicians of scientific medical knowledge. Two elements have been essential to the development of this great benefaction: money and men. The former was the more readily secured. The men with breadth of outlook sufficient to visualize the significance to world welfare of this enterprise were hard to find. The commission consists of physicians and business men with international interests and minds trained to look upon the world as a unit and not an aggregation of unrelated parts. But beyond the commissioners still lies the difficulty of getting men of proper training to carry on the details of the work in foreign countries. So a school has been established to care for this need, where physicians receive the necessary executive education and mental broadening to assume the complicated duties involved in prosecuting campaigns in other lands.

The Great War furnished an extraordinary opportunity for the development of the international viewpoint among the rather provincial population of these United States. Medically this development manifested itself in the remarkable expansion of the American Red Cross. It took the mind of an international financier correctly to grasp the significance of the opportunity. When Henry P. Davison took hold of the situation and announced that he needed one hundred million dollars to carry on, the executive council very nearly suffered from syncope. His was the only mind that foresaw the expenditure not of one but of three or four hundred millions were we to perform our international medical obligations in satisfactory fashion.

Save by those intimately concerned with the administration of the American Red Cross during and after the war its actual rôle as an international medical clearing house is scantily appreciated. The practical value of its supplies to the sorely pressed allies before our own entrance into the struggle is known only to those of us who were there to see what added suffering overtakes an army when its surgical dressings run low. Unless there are men in this room who were with the American Red Cross in Italy during the Austrian invasion of 1917, none can realize the tremendous service rendered both morally and materially by our organization and its important share in averting complete disaster along the Piave. And in addition to its practical efficiency the Red Cross seized the opportunity to enter with enthusiasm into research work covering the problems of war medicine, for the alleviation, so far as might be, of the human agony caused by the sinister conditions of modern warfare.

It is characteristic of the greatness of Mr. Davison's mind that he could grasp and read so clearly the true significance of this vast international organization for the promotion of health. To be sure, it was a wartime measure, but did it not have an equally important rôle to play in times of peace? Had not the nations learned that it was time to combine in the eternal conflict against the forces of accident and disease? And so was born the League of Red Cross Societies, a permanent international clearing house for the promotion of the health of the world. The many difficulties that have surrounded this organization in its early development cannot dim the high idealism of its conception nor lessen the great service it has already rendered, though they will slow down its full fruition for a time. The International Committee of Red Cross Societies at Geneva has shown lack of understanding sympathy and cooperation. The League of Nations has established a Department of Health of its own to take on a rôle which was to have been assumed by the League of Red Cross Societies. And so jealousies and the pettinesses of humanity are delaying the development of one of the really great ideas which the war has produced.

The world has progressed but a little way along the road of unselfish combination for the common good. Dr. Januszewski, former Commissioner of Public Health in Poland, in a vigorous article in the *International Journal of Public Health*, deplores the lack of earnest consideration of the problems of health in the Treaty of Versailles. If the war was fought to make men's lot happier why did not the nations appreciate more clearly that international agreements must include specific action calling for world standards of public health? Advanced thinking this, yet when one reflects on the complicated social problems taken up and settled in the Versailles Treaty it is somewhat extraordinary that the paramount problem of the nations' health should be dismissed in one short paragraph, urging the members of the League to make international arrangements to the end of preventing or combating disease. This serves to make it still more significant that it was left to the inspiration of a single broad-minded American to popularize the great principle of international public health through the League of Red Cross Societies.

It is a great temptation to enter more deeply into the details of the slow awakening of international consciousness in the field of medicine, to chant the praises of the medical missionary in his lonely and consecrated effort to spread the gospel of health throughout the world, to sing again the immortal epic of the Canal Zone, or tell the story of that picturesque chain of child welfare clinics organized, by American doctors and nurses, and extending along the

Eastern front from the Baltic to the Aegean Sea in that vast stretch of devastated territory where childhood is having such a desperate struggle for existence.

Greater interest attaches to a survey of practical work which is being accomplished on international lines, but this fact does not belittle the importance of many other elements, such as the international congresses of physicians and surgeons, which serve so effectively as distributing centers of modern medical knowledge. Of such gatherings, perhaps, none has greater significance than the rather prosaic meeting at Paris, in 1920, of a congress to consider medical nomenclature. This was the third meeting of its kind, the first being held in 1900, under the imposing title of "The First International Commission for the Decennial Review of Nomenclature." As long ago as 1839 Dr. William Farr, English Registrar General for the Department of Vital Statistics, wrote: "The nomenclature is of as much importance in this department of inquiry as weights and measures in the physical sciences, and should be settled without delay." Dr. Farr's own classification held almost unchanged until Bertillon greatly improved upon it in 1886. But not till 1900 was the importance of an international nomenclature fully recognized and action taken by the representatives of most of the civilized countries of the world.

I cannot refrain from expressing deep satisfaction at the plan of the American College of Surgeons for a visit to our South American neighbors next winter. Too little is known by us of the splendid work being done in other parts of our own hemisphere by men of the widest experience and keenest medical vision.

In this intentionally brief and superficial survey of the growth of international relations in the field of medicine, it cannot fail to be a source of gratification to observe the preëminence of America's leadership. Without vain-glory it is fair to recognize in this fact another evidence that in the soul of America there is a profound yearning to make the world a better place in which to live and to enhance the happiness of its inhabitants. After a close study of the medical situation in foreign lands, however, I am unwilling to admit that we possess an idealism that is unusual or that differs to any marked degree from that of the medical faculty of other countries. The difference lies far more in our capacity for translating that idealism into action. Here, again, our resources are so vastly greater that we must not assume too much credit for the fact. We can afford to try experiments on an expensive scale impossible to the impoverished health departments abroad. The extraordinary coöperation found everywhere on the part of government and doctors alike in all countries where that coöpera-

tion has been sought indicates the breadth of vision that seems to be the natural state of mind toward matters of public health.

In conclusion let us put the question plainly, "Are we as individuals in touch with this vast international movement in medicine?" Last winter I was called hastily to give an address in a thriving town, not far from Boston, in an effort to persuade the taxpayers to continue the salary of a Public Health Nurse. Even the local doctors, it was reported, were lukewarm toward the proposition. Is it not a bit deplorable that in our Old Bay State reactionary tendencies must still be fought when Poland, Czecho-Slovakia, and the New Kingdom of the Yugo-Slavs, are clamoring for more, and still more, Public Health Nurses? Shall we, who have taught these countries to appreciate her value, now repudiate this new Angel of Mercy in our own communities? When we accept the dignified title of Doctor of Medicine we formally accept the *noblesse oblige* which it implies. Our full obligation is discharged only when in matters of the public health we cultivate the broadest vision and take our place as leaders in the effort to teach humanity that man's physical well-being is not an individual matter, but a problem of the Community, the State, the Nation, and the World.

Original Article.

CONGENITAL ANATOMICAL DEFECTS OF THE SPINE AND RIBS.

BY JAMES WARREN SEVER, M.D., BOSTON,

[From the Orthopedic Department of the Children's Hospital.]

To those of us who possess a backbone, the following study, or report, may prove of interest, as giving evidence of the fact that such an anatomical asset is subject to great changes, distortions and serious defects in development.

The past few years I have been greatly interested in selecting from several thousand x-ray plates at the Children's Hospital those for study which showed any portion of the spine or sacrum. As a result of this study, I have found a large number of cases which showed anatomical defects of congenital origin of the ribs and vertebrae of a greater or less degree. It is with the idea of putting on record such a large number of most interesting cases that this report is presented.

For purposes of convenience and clearness, the report will be divided as much as possible into the following sections:

I.—Theories of ossification; development and numerical variation;

II.—Defects of the cervical vertebrae including cervical ribs;

III.—Defects of the dorsal vertebrae including rib defects.

IV.—Defects of the lumbar and sacral vertebrae.

V.—Conclusions.

Each section will, as far as possible, review the literature which has a bearing on that special section.

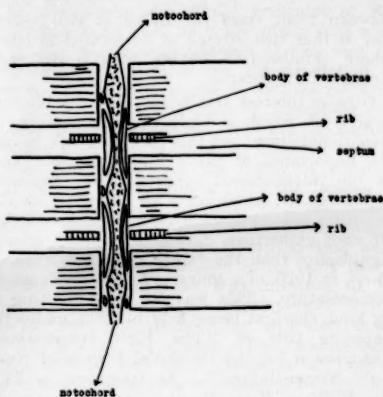
I. THEORIES OF DEVELOPMENT AND OSSIFICATION—MORPHOLOGY OF VERTEBRAE.

To understand the cause of the defects of the vertebrae one should be familiar with the embryological development of the spine, so I will review briefly the embryology of the vertebrae. This embryology includes not only the cervical vertebrae but the dorsal and lumbar as well, and need not be taken up again later in other sections to follow.

At one stage the embryo is an irregular spherule consisting of three layers known as the ectoderm, mesoderm and entoderm. The mesoderm giving origin to the vascular and locomotive system, the skin, and all connective tissues, includes as well the skeleton. In the embryo the ectodermic medullary ridges fold in and come together to complete the neural tube. The notochord, the predecessor of the vertebral column, is then formed by a strip of cells along the median dorsal wall of the entoderm which separates into a tube, and around which the spinal column is developed.

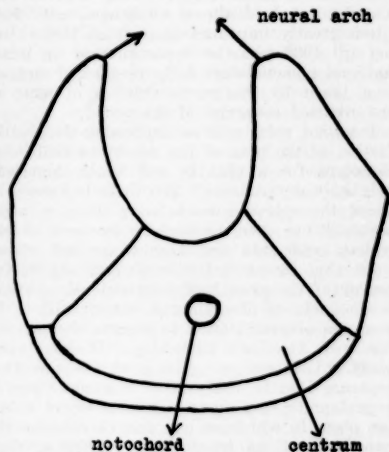
According to Keith,¹¹ in the second month of foetal life, the notochord begins to disappear. The bodies of the vertebrae and parachordal cartilages form around its sheath and constrict it, and it disappears in the basal cartilage of the skull. The centrum, or body, of each vertebra is formed around the notochord, but only between the centra, where the intervertebral discs are formed, does this primitive structure persist. (See Cut No. 1.)

The epidermis is then completed across the middle line and is soon separated from the cord by the extension between these of the mesodermic tissue which forms the meninges, vertebrae, muscles, and fibrous structures. The notochordal sheath is surrounded by a growth of embryonic tissue, which constricts the notochord at regular intervals, nearly, and later, quite obliterating it (See Cut No. 1 from Keith). The remaining sections of the notochord persist and in later development form the central gelatinous portions of the intervertebral discs. In the surrounding embryonic tissues first the cartilaginous centres appear, and later the bony centers as small groups of cells. Each vertebra is formed of a number of these centers symmetrically arranged on each side. A failure of any one of these centers to appear, or fuse with the others of the group, or an asymmetrical irregular fusion, would result in



Horizontal Section from dorsal aspect showing the relation of vertebrae to the primitive segments.
From Keith - p. 59

FIG. 1.



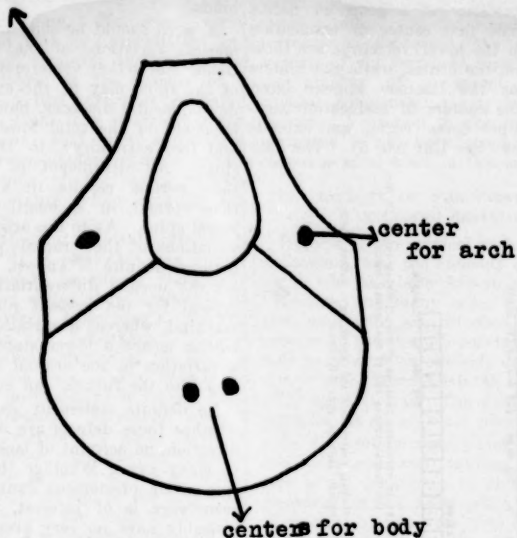
in cartilaginous stage - 6th week

FIG. 2.

an imperfect bony vertebra (Adams'). (See Keith cuts Nos. 2, 3 and 4.)

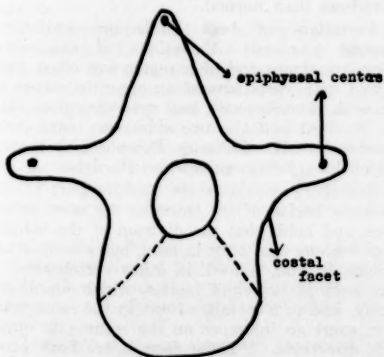
The epidermis always unites if the medullary canal closes, though the mesodermic tissues may present defects. The neural arches of the vertebrae are completed posteriorly by the growing together and fusion in the middle line of the two laminae, each of which is os-

neural arch



Centers of Ossification - 7th week

FIG. 3.



Secondary Ossific Centers

FIG. 4.

sified from a separate center. Each neural arch has one center of ossification which appears in the eighth week. These neural ossifications fuse behind in the first year. The spinous and transverse processes are formed by outgrowths of cartilage into the septa be-

tween the primitive segments. The ribs are also formed by outgrowths from the vertebrae. In the cervical, lumbar, and sacral regions they fuse with the transverse processes, but remain as separate elements in the dorsal regions. Epiphyseal centers for the ossification of the transverse and spinous processes appear about puberty.

A malunion or absence of the involuting mesodermic elements which form the vertebral arches and spinous processes may be either partial or complete. The defect may be confined to one arch or body, but often involves several and even at different levels. Each lateral half of the vertebra is formed from three primary cartilaginous centers, one for the neural arch, one for the costal process, and one for each half of the centrum. Ossification of the body of the vertebra commences in the middle by two processes which rapidly coalesce, and are formed by the seventh week. Ossification for the laminae commences where the transverse processes afterward project, extending forward toward the body and backward toward the spinous processes. However, if the centers of ossification of the centrum fail to develop we have a defect of the body, and if there is a de-

fect in the ossification of the centers of the laminae we, therefore, get a posterior defect in the spine. The first center of ossification which appears in the lower vertebrae are those which are to form the bodies, while the centers of ossification for the laminae appear later. The fusion of the centers of ossification commences in the upper dorsal region and extends in both directions (See Cut No. 5). The fail-

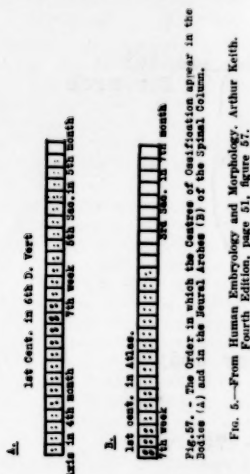


FIG. 5.—From Human Embryology and Morphology, Arthur Keith, Fourth Edition, page 41, figure 57.

ure for the centers for the laminae to fuse causes a median posterior defect in the spine, which is most common in the lower portion of the spine which closes last. Minot has pointed out, however, that ossification is merely a supplementary process and produces no important change in the form or anatomical relations of the vertebrae, therefore it would seem that the cause of any congenital defect is created during the evolutionary period of the membrano-cartilaginous stage, or before the end of the fourth embryonic month. A bony defect in general may be looked upon as a failure on the part of the developing organism to supply the proper structure for ossification and bone growth in the proper direction (See Keith Cut No. 3). As has already been pointed out, these defects are more common in the lower segments of the spine than in the upper.

One other theory, advanced by Sharp³, should be mentioned which takes the ground that primary mesodermic fault is not the cause of the defective development, but that it is due to an abnormal accumulation of cerebrospinal fluid in early fetal life, which by exerting pressure prevents the coming together of the mesodermic plates containing the rudimentary laminae, and in this manner producing a

defect in the spinal canal, called cystic spina bifida.

A word should be said here in regard to numerical variations of the vertebrae and ribs. Böhm² states that variations of the caudal part of the spine may be the expression of a deep developmental disorder, namely, of a faulty attachment of the total lower extremity (pelvis and free extremity) to the trunk, i.e., the spine. An attachment of the pelvis higher than normal results in a shortening; lower than normal, in a lengthening of the presacral spine. As to the origin of the numerical variations of the cranial part of the spine, nothing definite is known. Rosenberg considers the normal differentiation of the spine as typical for the present phylogenetic state of mankind, whereas a variation in the caudal direction means a lower state,—an atavism; and a variation in the cranial direction signifies a step into the future,—an epigenesis.

No definite statement can be made as to whether these defects are cranial or caudal in direction, on account of lack of complete x-rays in many cases. Whether they are atavistic or epigenetic phenomena cannot be stated. Their occurrence is of interest, but clinically they probably have no very great significance from the viewpoint of numerical variations alone.

According to Thomas Dwight⁴, variations occur in two ways: by irregular development of the costal elements at or near the ends of regions of the spine, and by irregular segmentation through which there are more or fewer vertebrae than normal.

Variations of both kinds are variations around a mean. Variations of the costal elements at one end of a region are often associated with variations of an opposite nature of those at the other end, and several regions may be involved and the two sides may vary independently. He discusses Rosenberg's⁵ theory, which he rejects, as does also Bardeen.⁶

Rosenberg considers the middle part of the thoracic region of the spine as the most primitive, and holds that the division of the column into regions (not only in man, but also in other mammals, and, indeed, in other vertebrates) is the work of two chief factors, which simultaneously, and to a certain extent in the same manner, exert an influence on the column in opposite directions. "These factors are both processes of transformation, of which the one, acting on the smaller proximal (i.e., cervical) division of the column, works distally; while the other, affecting the greater distal (i.e., lumbar, sacral, and caudal divisions) works proximally." In other words, the cervical region on the one side and the lumbar on the other tend to absorb into themselves the thoracic vertebrae nearest to them. Such a change at either one end or the other is to be considered progressive,

and a change in the opposite direction retrogressive.

Irregular segmentation. Numerical variations are explained also by intercalation and excalation, by which is meant the presence of an additional vertebra, or the absence of a normal one, between two particular vertebrae. This theory differs from that of irregular segmentations as follows: that inter- and excalation imply a correspondence between certain vertebrae at the ends of the series between which the change occurs, while irregular segmentation does not.

The occurrence of eight cervical vertebrae is excessively rare'. It is somewhat less uncommon for the thorax to be placed abnormally high. Dwight⁸ also states that Bardeen's investigations controvert Rosenberg's observations, and destroy the hypothesis. Bardeen shows that the original position of the ilium is opposite the anterior part of the lumbar region, and that in development it travels backward instead of forward. Moreover, when it has once joined a vertebra, it never leaves it. All of which is in direct contradiction to Rosenberg's system. The junction of the spine and ilium occurs at about the end of the fifth week. Variation occurs before the sixth week. It is unlikely that there is a precise number of human vertebrae. Fol has shown, and his discovery has been confirmed, that at a very early time the human foetus has thirty-eight vertebrae, some of which, however, do not persist. It is well known that variations in number of vertebrae of the different regions increase tailwards.

Bardeen states that Rosenberg's theories are discounted. It is probable that, as a rule, calcification in the ossification centers of the vertebrae in human embryos begin in embryo about 5 cm. long and three months old. He concludes that after the attachment of the ilium to the vertebral column is made it is not segmentally altered during subsequent development. The thoracic vertebrae are differentiated from the others at this early period of five weeks.

Carroll Smith⁹ has reported a case of absence of the seventh and eighth ribs, and gives a review of some of the recent literature on the subject, but throws no further light on the etiology.

Hooton¹⁰ states in regard to numerical variations the following facts: the first lumbar vertebrae is phylogenetically a dorsal vertebra, since in the typical primate the twentieth is the last rib bearing vertebral segment. Man has suffered the loss of a rib in consequence of the lengthening of the lumbar region required for the assumption of the totally erect posture and bifid form of progression. Hence the first lumbar vertebra in man partakes of the character of a dorsal vertebra and is occasionally

rib-bearing. In regard to the number of pre-sacral vertebrae, twenty-four is by far the most usual number. If the number of pre-sacral vertebrae is decreased, the sacrum generally consists of six vertebrae instead of five, and if the number of pre-sacral vertebrae is increased, compensation also takes place in the sacrum. Variation in the number of lumbar vertebrae is not very common, but there occurred several cases in this series.

II. DEFECTS OF THE CERVICAL VERTEBRAE INCLUDING CERVICAL RIBS.

Defects of the cervical vertebrae are not very uncommon, and the anomaly of cervical or vestigial ribs has been known since the time of Versalius, and many cases reported. Cervical ribs, as a rule, are attached to the transverse process of the seventh cervical vertebra. They may be present on one side only, but the condition is more often bilateral, although never exactly symmetrical. The condition is generally regarded as an atavistic phenomenon.

In this study twenty-two cases of cervical ribs were observed, varying from three-quarters of an inch long to about two inches, as measured in the x-ray plate. Associated with these cervical ribs were nine cases of other vertebral or rib deformities in other portions of the spine. None of the cases had any symptoms referable to the presence of the ribs, but they were discovered only by routine x-ray examinations. Whether any of these children in adult life will develop symptoms from the presence of these abnormal cervical rib developments cannot be foretold, but it would make an interesting study.

Roberts¹¹ has reported a case of cervical ribs in an adult, and Krabbe¹² has reported six cases, the symptoms from pressure beginning at 12 years of age. Goodhart and Taylor¹³ report a case with symptoms dating from the eighth year, but unrecognized as such until the patient was twenty-three.

Embryologically each cervical vertebra has a costal process, which with transverse process forms the costotransverse foramen. In the cervical vertebrae the anterior part of the transverse process represents a costal process, but only in the sixth (sometimes) and the seventh, is the costal process formed by a separate center of ossification. The costal process of the seventh cervical, usually represented by a mere vestige, may develop into a rudimentary or even a fully formed rib which reaches the sternum. The cervical rib results from an abnormal development of this costal process, which process is found in all vertebrae, and in the dorsal vertebrae forms the normal ribs.

The cervical ribs to be included in this report correspond generally to Class II of Gruber's Classification, which is as follows:

Gruber's Classification of Cervical Ribs.

Class I. A slight increase in the costal process, not reaching beyond the transverse process.

Class II. When the rib protrudes beyond the transverse process to a certain degree, and either terminates in a free end, or is attached in some way to the first rib.

Class III. Those ribs which extend well beyond the transverse process and a considerable distance towards the first rib, even reaching the cartilage of the normal first rib. They possess a good body, and often united by a ligament to the first costal cartilage.

Class IV. The rib which is completely developed articulating with the first costal cartilage and with the sternum.

See Cut No. 6—Cervical ribs—symmetrical.

See Cut No. 7—Cervical ribs—right slightly longer and larger than the left.

See Cut No. 8—Cervical ribs—right larger than left, rather unusual type.



FIG. 6.—Cervical ribs.



FIG. 7.—Cervical ribs.



FIG. 8.—Cervical ribs.

See Cut No. 9—Represents an imperfectly developed cervical spine, the defect extending into the upper dorsal vertebrae. The sixth and seventh cervical bodies split, and first and second dorsal. There were eleven ribs on the left and ten on the right, and but nine dorsal vertebrae could be found.

See Cut No. 10.—Shows a cleft in the left cervical and three upper dorsal vertebrae with a marked increase in width and decrease in height of the cervical vertebrae.

Clinically, in this case, there was considerable shortening of the neck, and the head was held forward. There was marked limitation of motion in all directions. There was considerable thickening and widening of the cervical spine. No vertebral cleft could be definitely felt. No other anatomical defects.

Other cases showed the following deficiencies in connection with the presence of cervical ribs:

1. Bilateral cervical ribs—the right short and thick, the left thin and twice as long. There was also a complete cleft through the body of the tenth dorsal vertebra.



FIG. 9.—5th, 6th, and 7th cervical split.



FIG. 10.—Shows a cleft in the last cervical and three upper dorsal vertebrae, with a marked increase in width and decrease in height of the cervical vertebrae.

2. Bilateral cervical ribs—a cleft fifth lumbar vertebra, twelve ribs on the left and eleven on the right.

3. Bilateral asymmetrical cervical ribs—partial blending of the fifth and sixth cervical bodies, and a split sixth cervical body.

4. Lower cervical vertebrae imperfect; first and second ribs are both fused.

5. Cervical ribs—eleven dorsal vertebrae; six lumbar vertebrae; bifid sixth lumbar; eleven ribs.

6. Cervical ribs—defective sixth and seventh cervical vertebrae and first and second dorsal vertebrae.

7. Cervical ribs—eleven pairs of ribs—eleven dorsal vertebrae.

8. Seventh cervical body bifid. Right torticollis.

9. Rudimentary cervical ribs—asymmetrical—right torticollis.

10. Cervical ribs. Incomplete fifth lumbar vertebra, about one-half body missing. Scoliosis.

11. Large cervical ribs going to angle of first rib.

III. DEFECTS OF THE DORSAL VERTEBRAE, INCLUDING RIB DEFECTS.

In the dorsal region there were twenty-six cases which showed defects in the vertebral bodies, varying a good deal in character and extent. Accompanying these vertebral defects were also rib defects, and the subsequent scoliotic deformities.

These defects were the result of the same faulty embryological development processes which have been described in Section I, but are much more extensive in the dorsal region, owing to the presence of the ribs. Some of these defects have already been described in Section II. in connection with the presence of cervical ribs or defects in the cervical vertebrae.

Some of these vertebral defects are classified as cases of spina bifida or spina bifida, occulta. Some of them were made manifest by the presence of a tumor on the back, and others by the presence of an area of hypertrichosis.

Under the names mero-rachischisis¹⁴ and hemi-rachischisis, incomplete spina bifida, and localized spina bifida, are grouped all the cases in which the defective development of the vertebrae affects only a part and not a whole of the spinal column. These defects occur about one in one thousand births. Spina bifida occulta, or crypto-mero-rachischisis, names which have been given to those cases in which there are no obvious external evidence of the defec-

tive state of the vertebral canal. Defective ribs may also result, according to some observers, by pressure of the foetal arm on the chest wall, and are generally unilateral. The occurrence of these cases of spina bifida occulta is not uncommon in the low dorsal region as a result of these developmental defects.

Photo No. 11 represents a case of congenital scoliosis due to defective dorsal vertebrae and fused ribs on the left. There is apparently only a partial development of the fifth dorsal vertebra.

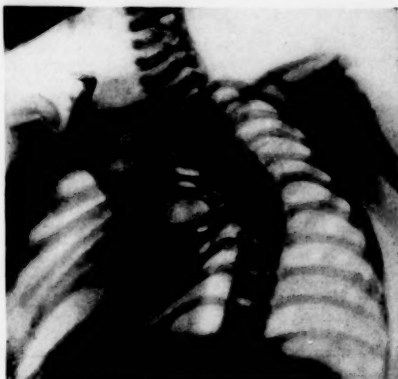


FIG. 11.—Represents a case of congenital scoliosis due to defective dorsal vertebrae and fused ribs on the left. There is apparently only a partial development of the fifth dorsal vertebra.

Photo No. 12. Missing ribs on the left and fused absent ribs on the right. There seems to be a normal number of dorsal vertebrae, but the third one is obviously defective.

Photo No. 13 shows defective cervical and dorsal vertebrae with absent and fused ribs on the left. A case of congenital scoliosis. (See Photos No. 14 and No. 15 of same case.) Apparently eight ribs on left and eleven on right.

Photo No. 16. Congenital scoliosis first noticed at two years of age—marked deformity. (See Photo No. 16 and X-ray No. 17.) Ribs are absent and others fused on right, and a number of the dorsal vertebrae are defective.

J. S. Photo No. 18. One other case of interest, a girl of five years, shows clinically a scoliosis with a hypertrichosis in the dorso-lumbar region, with a palpable depression from the first to the fifth lumbar vertebra. (See Photo No. 18. See legend on X-ray No. 19.)

Other cases in this series of defective development in the dorsal region showed the following defects:

SEX.	AGE.	CLINICAL DIAGNOSIS	CONDITION OF THE SPINE.
F	14 D.O.S.	Dorsal scoliosis.	Eleven ribs, one missing on left, and two fused. Twelve on right. Several dorsal vertebrae split. Ten ribs on each side, cervical and dorsal vertebrae generally defective.
F	8 yrs.	Left dorso-lumbar scoliosis.	Eleven ribs on left, twelve on right, sixth and seventh ribs on left fused, fifth and sixth dorsal vertebrae imperfect.
F	12 yrs.	Left dorso-lumbar scoliosis.	Second degree cervical rib on left. 11 ribs on left, 10 on right, second rib absent. Defective second dorsal vertebra. 12 dorsal vertebral bodies.
M	12 yrs.	Left dorsal scoliosis.	Third dorsal imperfect. A small wedge-shaped piece represents the 5th dorsal; 11 dorsal vertebrae.
F	10 yrs.	Right dorsal, left lumbar scoliosis.	6th, 7th, 8th and 9th dorsal vertebrae imperfect, with an extra piece of body between the 7th and 8th dorsal vertebrae on the right. Only ten dorsal vertebrae and 11 ribs on each side.
M	10 yrs.		Third dorsal vertebra imperfect, due to lack of fusion of laminae and body. See cut No. 19.
M	13 mos.		Dorso-lumbar scoliosis. First dorsal vertebra split into two wedge-shaped pieces. Between the first lumbar and 12th dorsal on left is a triangular piece with an articular facet, probably belonging to the first lumbar. The second and third lumbar bodies are split into two parts each, varying in shape and apparently due to lack of fusion of the laminae and spinous processes.
F	8 yrs.		Nine ribs on right, ten on left. Extra body between 10th and 12th dorsal. The eleventh dorsal vertebra only partially developed on right.
M	13 mos.	Congenital scoliosis.	Almost a duplicate of X-ray No. 12. Shows a number of ribs missing in the upper dorsal region on the left with irregular and fused ribs on the right.
M	12 yrs.	Congenital scoliosis.	Several of the upper dorsal vertebrae are defective. 10th dorsal vertebra split. Spine otherwise perfect.
?	6 yrs.		Eleven ribs on left and nine on right. The 2nd, 3rd, and 4th ribs on the right are absent. The 1st and 2nd dorsal vertebrae, as well as the 4th, 5th, 6th, and 7th, are imperfect.
M	10 yrs.	Scoliosis.	Twelve ribs on each side. On left there is great irregularity in the spacing of the ribs, the 4th and 5th, 6th and 7th are fused near their angles. The vertebral bodies of the 2nd, 3rd, 4th and 5th dorsal show a bifid condition and irregular development.
M	6 yrs.	Congenital scoliosis, right dorsal, left lumbar.	Marked lack of proper development in the cervico-dorsal region, impossible to classify. Apparently 10 ribs on the left and 9 on the right. (See X-ray No. 20.)
F	10 yrs.	Congenital left dorso-right dorso-lumbar scoliosis.	The only abnormalities present in this spine are the presence of only eleven dorsal vertebrae and eleven pairs of ribs. There are five lumbar vertebrae.
F	10 yrs.		Eleven ribs on left with very irregular spacing. The 9th and 10th being fused. On the right there are only eleven ribs springing from the vertebrae, but the 4th is split beyond the angle into two and fused partially with the one below. The 4th and 5th vertebrae are imperfect, the 5th being represented only by a small wedge-shaped piece of bone on the right of the spine. The 8th is also only partially developed.
F	5 yrs.	Congenital scoliosis.	Twelve ribs on each side. On the right the 4th and 5th arise by a common stem and split later into two ribs. There are only eleven dorsal vertebrae, the 2nd, 3rd, and 4th being imperfect, and the 5th being represented only by a small wedge-shaped piece of bone on the right of the spine from which a rib springs.
F	12 yrs.	Congenital scoliosis—left cervico-dorsal, right dorsal, left lumbar.	Eleven ribs on each side. Ten dorsal vertebrae. The 7th, 8th, and 9th bodies partially fused and split. Scoliosis. (See X-ray No. 21.)
F	10 yrs.		No spinal deformity. 12 dorsal vertebrae. A very long last dorsal rib on right and a short rib on left resembling a transverse process.
M			Shows no vertebral deformity, but has only eleven ribs on right and twelve on left. The 5th lumbar spinous processes and laminae have not fused.

SEX.	AGE.	CLINICAL DIAGNOSIS.	CURSION OF THE SPINE.
Plate 801—Baby			
Girl	3 yrs.		There are thirteen dorsal vertebrae, thirteen ribs on right and twelve on left. Normal number of dorsal vertebrae, long last rib on right and very short on left. Eleven ribs on right, twelve on left. No other defect.
Boy			Twelve dorsal vertebrae, thirteen ribs on left, one as 1st lumbar vertebra. Twelve on right.
Girl	9 yrs.		Twelve ribs on right, thirteen on left, the extra one being on the 1st lumbar vertebra, about 2½ inches long.
Boy			Congenital scoliosis—spina bifida occulta. (See X-ray No. 22.) Multiple defects of vertebrae and ribs. 5th lumbar split wide open. 10 ribs on left, eleven on right. On right 2nd rib beyond angle is divided into two by a loop. The 6th and 7th ribs are partially fused.
Girl	16 yrs.		Congenital scoliosis—the dorsal vertebrae from the 7th to the 12th are generally defective with irregular development and fusion of the bodies. Twelve ribs on right and eleven on left. The 12th on right is very short.
Plate No. 347			
Boy	?		Third dorsal vertebral body bifid. No other defects. No scoliosis.
Boy	?		Eleven ribs on left, 12 on right. 1st sacral vertebra bifid.
Girl			Congenital scoliosis—12 ribs on right and 11 ribs on left. The 7th and 8th ribs on the left are partially fused and the 5th rib on the left asymmetrical and placed much more closely to the 6th than normal. There is a general defect in the dorsal spine, below the 5th dorsal vertebra. The 7th dorsal has only one-half a body present, the 6th is split diagonally. The 9th is wedge shaped. The 10th and 11th imperfect. Practically the whole lumbar spine is in a condition of rachischisis. A case of spina bifida which died at the age of 6½ years after several operations.
Boy	?		Imperfect—eleventh dorsal vertebra cleft and bifid. 1st and 2nd dorsal cleft and wedge-shaped, with apex to right. 1st and 2nd rib on right fused near angle. Eleven ribs on right and twelve on left.
Plate No. 225			
Boy	1 week		

IV. DEFECTS IN THE LUMBAR AND SACRAL REGIONS.

In this series there were a large number of cases which showed defects of various types of the lumbar and sacral vertebrae. In the sacral region ordinary defects, such as lack of fusion of the laminae and spinous processes, cannot be recorded as abnormal until after the seventh year, for they do not normally fuse until about that time. Many cases of this type had to be thrown out of consideration, when further study was made of them on account of their being under seven years of age. In all, there were eighteen defects of the lumbar vertebrae and sixteen of the sacral. Many of these cases had defects of both lumbar vertebrae and sacral vertebrae in common.

According to Gray's Anatomy (Spitzka edition, 1913), the lumbar vertebrae have two additional centers for the mammillary tubercles, which project from the back part of the superior articular processes. The transverse process of the first lumbar vertebra is sometimes developed as a separate piece, which remains permanently unconnected with the remaining portion of the bones, thus forming a

lumbar rib. In the sacral region the development is as follows: At about the fourth or fifth month of foetal life ossification of the central part of the bodies of the first three vertebrae commences. Between the sixth and eighth month ossification of the laminae takes place, and about the same period the centers for the lateral masses for the first three sacral vertebrae make their appearance. The period at which the arch becomes completed by the junction of the laminae with the bodies in front and with each other behind varies in different segments. The junction between the laminae and the bodies takes place first in the lower vertebrae as early as the second year, but is not affected in the upper ones until the fifth or sixth year.

Anomalies of the fifth lumbar vertebra are so common that the late Dr. Thomas Dwight was doubtful as to just what should be considered normal. Anomalies of the low lumbar and sacral regions are most common, but vary considerably in type. This region is the most common one for the occurrence of spina bifida and spina bifida occulta. Asymmetrical transverse processes of the fifth lumbar vertebra are very common and some of the more unusual

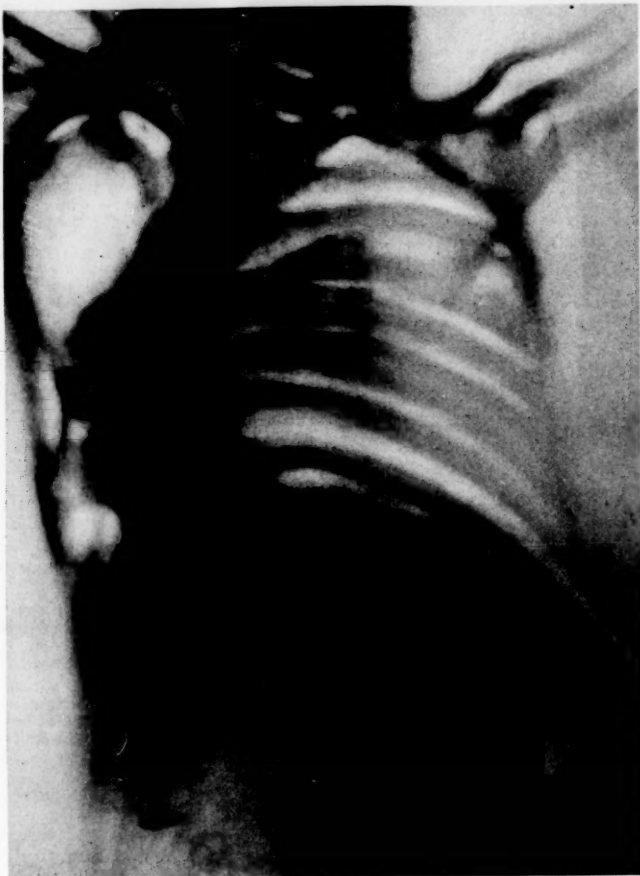


FIG. 12.—Missing ribs on the left and fused and absent ribs on the right. There seems to be a normal number of dorsal vertebrae, but the third one is obviously defective.

ones will be described. This latter condition is not alone the cause of scoliosis, for many cases have the condition discovered accidentally by x-ray examination. Neither do extra ribs and fused ribs or numerical variations in the numbers of the vertebral bodies cause scoliosis. Occasionally one finds accompanying these cases of defective vertebrae other congenital conditions such as dislocation of the hip or a paralytic club-foot, which often accompanies a condition of spina bifida or spina bifida occulta. Several such cases occurred in this series, often with only a split or bifid fifth lumbar, or first sacral, or both. As a general rule, the majority

of the defects involved the low lumbar, that is, below the fourth and the three upper sacral vertebrae. Defects of the other lumbar segments were rare unless the whole region was involved. As noted above, the presence of a first lumbar rib was not uncommon.

Boy, Age 10. X-ray shows 11 ribs on left and 12 on right. The laminae and spinous processes of the fourth and fifth lumbar and first sacral are cleft.

Girl, 5 Weeks. Abnormality of whole lower lumbar and sacral spine, as well as the eleventh and twelfth dorsal vertebrae. The eleventh and



FIG. 13.—Shows defective cervical and dorsal vertebrae with absent and fused ribs on the left. A case of congenital scoliosis. (See Figs. 14 and 15 of same case.) Apparently 8 ribs on left and 11 on right.

twelfth lumbar bodies are apparently fused. There is a general widening of the whole lumbar spine.

Boy, 10 Years. Split and bifid fourth lumbar, with lateral displacement of trunk to right. Marked sacralization of transverse process of fifth lumbar on left (See Cut No. 23).

Boy, 13 Years. Lumbar spine shows at top of sacrum, on left, a large, irregular-shaped piece of bone, probably an incomplete body. Spine tipped sharply to right. The dorsal spine shows a bifid condition of the spinous processes extending from the second to the sixth dorsal. Scoliosis. (See Cuts No. 24 and 25.)

The next four cases and cuts show variations of the different types of split and bifid fifth and first sacral vertebrae; otherwise they have no clinical significance. (See Cuts Nos. 26, 27, 28 and 29.)

The next three cases show different types of asymmetrical sacralization of the fifth lumbar transverse process. This condition may perfectly well be present without symptoms, but a certain number apparently may have pain and lateral displacement of the trunk as a result of this impingement on the ilia, and so may be relieved by operation (Adams¹). (See Cuts Nos. 30, 31 and 32.) (O'Reilly¹².)

Girl, 13 Years. The bifid condition of her spine was found only after an x-ray examination was made as a record of her scoliosis. It showed an incomplete fifth lumbar, with lack of fusion of the fifth lumbar laminae and a rudimentary condition of the last dorsal and first lumbar vertebrae.

Boy, 4 Years. This boy had an older sister who was born with an upper dorsal spina bifida. He came to the hospital on account of trouble with his feet. He began to walk at two years



FIG. 14.—(See x-ray No. 13.)

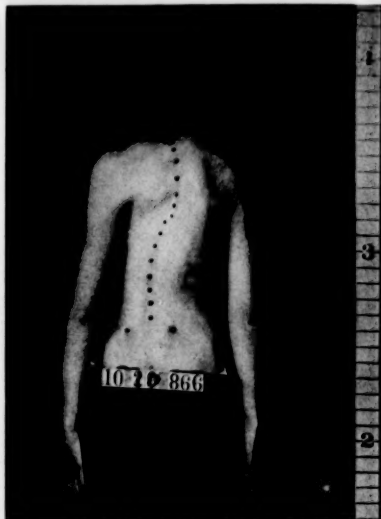


FIG. 15.—(See x-ray No. 13.)



FIG. 16.—Congenital scoliosis first noticed at two years of age—Marked deformity. (See Fig. 17.) Ribs are absent and others fused on right, and a number of the dorsal vertebrae are defective.



FIG. 17.—(See x-ray Fig. 16.)

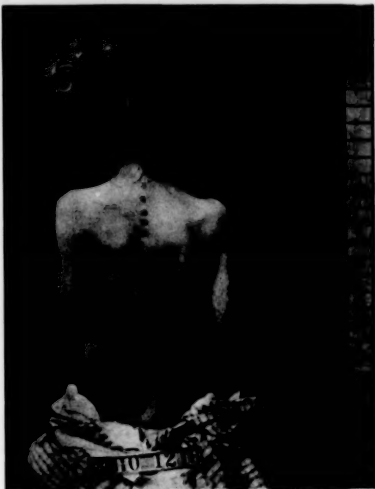


FIG. 18.—J. S. One other case of interest. A girl of 5 years—shows clinically a scoliosis with a hyper-rhachis in the dorso-lumbar region, with a palpable depression from the first to the fifth lumbar vertebra.



Same as Fig. 18. Shows markedly defective spine with structural scoliosis—10 ribs on each side and 10 dorsal vertebrae. Ribs on left fused.



FIG. 19.—Third dorsal vertebra imperfect, due to lack of fusion of laminae and body.

of age. When he was born there was noticed a growth of hair on the lower part of his back. Examination showed that there was a paralysis of the internal group of muscles of the right lower leg, besides the internal rotators of the thighs. On the back, in the low dorsal region, there was an absence of several spinous processes. Over this area there was a clump of long black hair, covering an area of about $2\frac{1}{2}$ by 4 inches. The x-ray (See Cut No. 33) showed a

fusion and lack of development of the last two dorsal and first lumbar vertebrae, with a marked shortening of the lumbar spine.

Girl, $2\frac{1}{2}$ Years. C. R. Spina bifida occulta. Right foot in a position of talipes equino valgus. Paralysis of the anterior tibial and flexor tendons of the right foot. Congenital dislocation of right hip. The x-ray shows changes in structure and size of the third and fourth lumbar vertebrae. The spinous processes and laminae are bifid, and the bodies are wider and thinner than normal.

Girl, 3 Years. Child born with a deformity of the spine and lower legs. Examination showed a small swelling in the region of the first lumbar vertebra. The left leg is atrophied and the foot shows a paralytic deformity of talipes valgus. The x-ray (See Cut No. 34) shows the whole lumbar region involved. There are no perfect lumbar vertebrae, the whole lumbar region being crumpled up on itself. The vertebrae are rudimentary and flattened. Lumbar spine about $1\frac{1}{2}$ inches in vertical direction.



FIG. 20.—Marked lack of proper development in the cervico-dorsal region, impossible to classify. Apparently 10 ribs on left and 9 on the right.

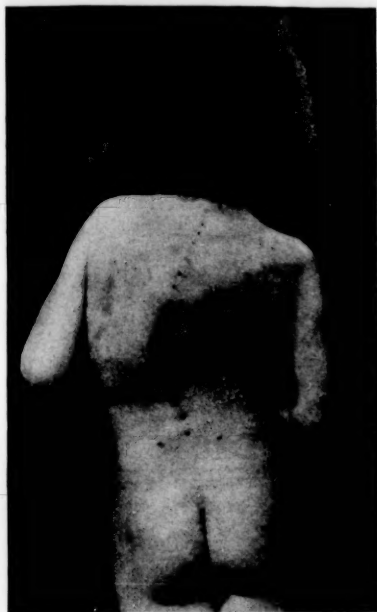


FIG. 21.—Eleven ribs on each side. Ten dorsal vertebrae. The 7th, 8th and 9th bodies partially fused and split. Scoliosis.

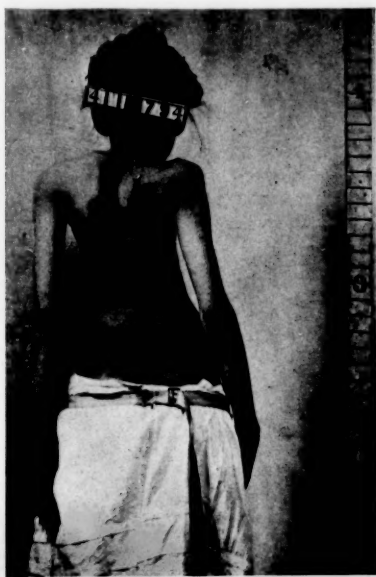


FIG. 22.
F., 10 years. Eleven ribs on each side. Ten dorsal vertebrae. The 7th, 8th and 9th bodies partially fused and split. Scoliosis. (See Fig. 21.)



FIG. 23.—Congenital scoliosis—spina bifida occulta.



FIG. 24.
Boy, 10 years. Split and blind 4th lumbar with lateral displacement of trunk to right. Marked ossification of transverse process of 5th lumbar on left.

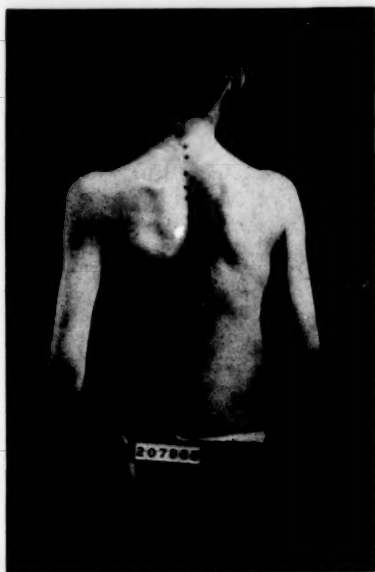


FIG. 25.—(See x-ray tracing, Fig. 26.)



FIG. 27.—Fifth lumbar and 1st sacral bifid.



FIG. 28.—Bifid 5th lumbar.



FIG. 29.—First sacral bifid.



FIG. 26.—Boy, 13 years. Lumbar spine shows at top of sacrum, on left, a large irregular-shaped piece of bone, probably an incomplete body. Spine tipped sharply to right. The dorsal spine shows a bifid condition of the spinous processes, extending from the 2nd to the 6th dorsal. Scoliosis. See Fig. 25.



FIG. 30.—Bifid 1st sacral.



FIG. 31.—Sacralized 5th lumbar.



FIG. 32.—Sacralized 5th lumbar transverse process on left.

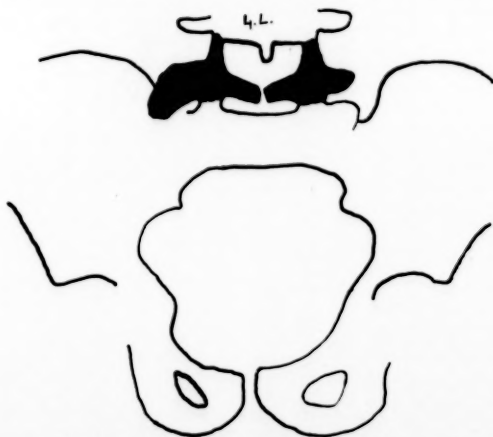


FIG. 33.—Bifid 5th lumbar—large hooked transverse process on right sacralized.



FIG. 34.—Shows whole lumbar region involved. There are no perfect lumbar vertebrae, the whole lumbar region being crumpled up on itself. The vertebrae are rudimentary and flattened. Lumbar spine about $1\frac{1}{2}$ inches in vertical direction.

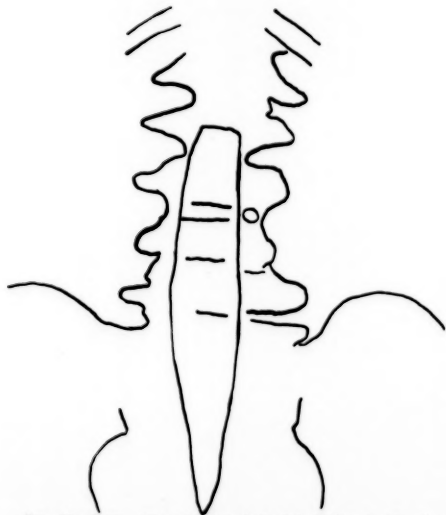


FIG. 35.—Shows cleft extending from 3rd lumbar to tip of coccyx. Apparently no laminae or spinous processes.



FIG. 36.—The x-ray shows a rudimentary pelvis, although from lack of ossification the whole structure cannot be seen. Dislocation of left hip. Cleft of lumbar and sacral spine extending from first lumbar to tip of sacrum. Whole lower spine much widened and flattened. The right ilium is rotated outward so that one apparently looks directly at the iliac portion of the sacro-iliac articulation.

Girl, H. C., Age (?). Plate 828. Shows complete cleft, apparently without spinous processes or laminae extending from third lumbar to tip of coccyx (See Cut No. 35).

Girl, 6 Months. Child was born with a patch of hair on the back. Examination showed a patch of hair over the lumbar spine about the size of the palm of the hand. A distinct cleft could be felt in the region of the second and third lumbar vertebrae. The left leg shows a congenital dislocation of the hip. The left side of the pelvis is much higher than the right. The x-ray (See Cut No. 36) shows a rudimentary pelvis, although from lack of ossification the whole structure cannot be seen. Dislocation of left hip. Cleft of lumbar and sacral spine extending from first lumbar to tip of sacrum. Whole lower spine much widened and flattened. The right ilium is rotated outward so that one apparently looks directly at the iliac portion of the sacro-iliac articulation.

Girl, 1 Year. Shows apparently twelve dorsal vertebrae and ribs. A lack of development beginning at about the ninth dorsal vertebra and extending to the sacrum, with shortening and widening of the lumbar spine. The last four dorsal vertebrae show even less signs of development than the lumbar (See Cut No. 37).

The other cases in this group were the milder and less severe types of vertebral deficiencies already shown and need not be further described.

CONCLUSION.

It is obvious, even after studying such a large series of cases, that no very definite conclusion can be reached as to the cause of such vertebral and rib defects. One can only fall back on the original morphological and embryological theories, and can be content to exhibit these cases as examples of such developmental faults as Nature saw fit to impose. That many of them cause serious structural defects and scoliosis is not questioned, and the problem can be met, at best, only by such external corrective methods as one can employ.

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FIG. 37.

Girl, 1 year. Shows apparently 12 dorsal vertebrae and ribs. A lack of development beginning at about the 9th dorsal vertebra and extending to the sacrum, with shortening and widening of the lumbar spine. The last four dorsal vertebrae show even less signs of development than the lumbar.

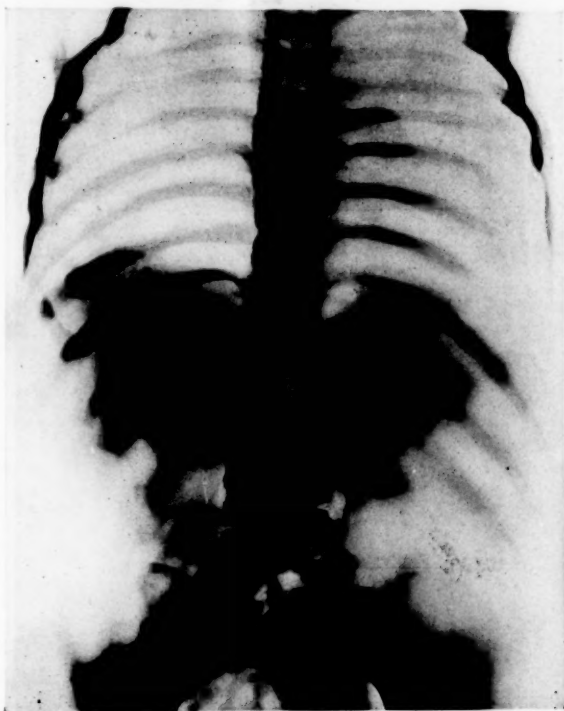


FIG. 28.

A Case of lumbar vertebral deficiency, showing complete disruption of the lumbar spine. There was also a congenital deformity of the left foot not paralytic nor due to the spina bifida, but coincidental.



FIG. 39.
Lateral view of previous case, showing bone, apparently vertebral
body in anterior spina bifida.

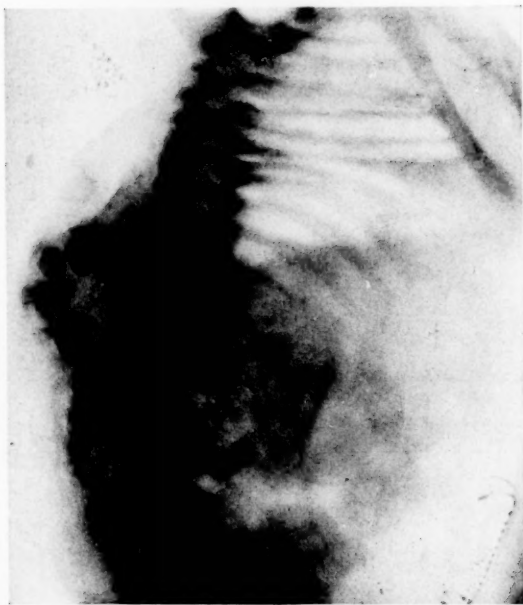


FIG. 40.
A lateral view of a case of spina bifida which included the spine.

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Book Reviews.

The Sex-Complex. By W. BLAIR BELL, B.S., M.D. Lond. Second Edition. New York: William Wood & Co. 1921.

This monograph is not, as its title might suggest, an essay on psychoanalysis, but "a study of the relationships of the internal secretions to the female characteristics and functions in health and disease. Based on several previous communications, the first edition, published in 1916, was favorably reviewed in THE JOURNAL at that time. This second edition represents extensive additions, amplifications and revisions, rather than presentations of new aspects of the subject. The work, which is largely expository, aims to demonstrate the morphologic, physiologic, psychologic and pathologic aspects of the endocrine control of sex-functions by photomicrographs. The volume is a valuable contribution to the literature of gynecology on the one hand and of endocrinology on the other.

The Diseases of the Newborn. By DR. AUGUST RITTER VON REUSS. New York: William Wood & Co. 1921.

This monograph, completed at the outbreak of the Great War but not published until its conclusion, represents the material and teaching of the clinics of Schauta and von Pirquet at Vienna. Of particular interest are the chapters on birth injuries, the umbilicus, hemorrhagic disease, tuberculosis, and syphilis. The work is illustrated with 90 figures, many of them in colors. There is an extensive alphabetic bibliography of over 1500 titles. The book is a monument of Teutonic industry and system.

Text-Book of Nervous Diseases. By CHARLES L. DANA, A.M., M.D., LL.D. Ninth Edition. New York: William Wood & Co. 1920.

Previous editions of this standard text-book for students and practitioners of medicine have been favorably reviewed in THE JOURNAL. In this ninth edition is new material on neurologic surgery and nerve injuries, derived from the Great War. New chapters have also been added on psychology and on endemic encephalitis. For various reasons the Basle nomenclature has not been adopted. The book is illustrated with 262 figures, including four plates in black and color. The appendix presents a useful table of the function and innervation of the muscles.

An Introduction to the Study of Hypnotism. By H. E. WINGFIELD, M.A., M.D., B.C. Cantab. Second Edition. New York: William Wood & Co. 1920.

The first edition of this monograph on experimental and therapeutic hypnotism has been favorably reviewed in THE JOURNAL. In this second edition there has been added to the chapter on treatment an account of cases bearing on repressed memories, in the light of Freud's theories. The book is intended primarily for those who are unacquainted with hypnotism, and aims to provide sufficient knowledge, theoretical and practical, to enable the use of suggestion in suitable cases.

The Course of Operative Surgery. By PROFESSOR DR. VICTOR SCHMIEDEN and ARTHUR TURNBULL, M.B., Ch.B. Glasgow. Second Enlarged English Edition. New York: William Wood & Co. 1920.

The first German edition of this admirable handbook for practitioners and students was published in Berlin in 1910, while the author was an assistant there in Professor Bier's surgical clinic. Five subsequent editions have appeared in the original. The first British edition was undertaken by the translator in 1912.

This second enlarged edition is an anatomical reconstruction in English of the main facts of the operative course on the cadaver, affording a connected and scientific survey of modern operations. There is a foreword by Professor Dr. A. Bier, a preface by the author, and an introduction by Mr. Turnbull. Dr. Schmieden, now professor of surgery at the University of Halle, aims to "prune the surgical tree of knowledge of alternative methods and leave only the stem common to all countries." The text is accompanied by 436 excellent illustrations. The English edition retains the B. N. A. nomenclature. The work presents the facts of modern operative surgery in classic form, in concise statement, within the limits of a handy volume.

Current Literature Department.

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RENAISSANCE OF HUMORAL PATHOLOGY.

ASCHNER, in a continued article (*Wien. klin. Woch.*, Jan. 26, Feb. 2, 1922), discusses the practical significance of the theory of diathesis and the revival of humoral pathology as a therapeutic consequence of the study of internal secretions. He considers particularly conditions of hypotonus, infantilism, hyperthyroidism, and plethora as modern representatives of the four classic physical types.

[R. M. G.]

THE THEORY OF CANCER.

FRANKEL, in a continued article (*Wien. klin. Woch.*, Feb. 2-9, 1922), summarizes modern theories of cancer as a systemic disease, but contributes nothing of novelty or importance.

[R. M. G.]

SUCTION DRAINAGE, WITH PRESENTATION OF AN APPARATUS.

CAMPBELL (*Journal of Urology*, Feb., 1922) says that in attempt to solve the problem of satisfactory post-operative drainage of the urinary organs, especially the bladder after prostatic surgery, the urological service of the Bellevue Hospital utilized in turn most of the drainage systems and contrivances advanced to date. Using parts of this one and that, a very serviceable and not too complicated system has been evolved.

The essential is dryness of the wound.

The contrivance is described in detail and five varied cases presented to show its results.

[B. D. W.]

ACKNOWLEDGMENT OF PRIORITY FOR THE TREATMENT OF IMPACTED CALCULI IN THE LOWER END OF THE URETER RELEASED BY FULGURATION.

YOUNG (*Journal of Urology*, Feb., 1922), in February, 1918, reported three cases of impacted calculi in the intravesical portion of the ureter, which were liberated by fulguration.

Although he made no claim to priority, he now takes pleasure in referring to Dr. Furniss's case, published May 17, 1913, under similar title and using same method, calling attention to the priority which Dr. Furniss deserves.

[B. D. W.]

VIABILITY OF SPIROCHETA PALLIDA IN EXCISED TISSUE AND AUTOPSY MATERIAL.

LACY AND HAYTHORN (*Amer. Jour. of Syph.*, Vol. V, No. 3, July, 1921) write that the finding of active treponemata in blebs in the case of a congenital syphilitic baby kept in a refrigerator for 26 hours before autopsy led to an examination of the literature and to some experiments on rabbits. The authors found that the reported viability-time for the treponema varied from a few minutes, on drying, through periods of a few hours, when kept moist, up to 24 hours in the ice chest.

They observed positive motility in human autopsy material 48 hours after death, the body having been kept in a refrigerator; in a chancre seven days after excision; in serum exudate in sealed capillary tubes at room temperature 121 days after collection; in saline suspension of rabbit's testicle in sealed capillary tubes at room temperature 58 days after castration; in rabbit testicle at refrigerator temperature 58 days after castration. After complete drying of the material containing the treponema, all attempts to inoculate were negative.

[A. W. C.]

EXPERIMENTAL OBSERVATIONS UPON THE EFFECT OF CHOLESTEREMIA ON THE RESULTS OF THE WASSERMANN TEST.

CRAIG AND WILLIAMS (*Am. Jour. of Syph.*, Vol. V, No. 3, July, 1921) state that the conflicting reports of various recent writers on the subject of cholesterol in the blood in health and disease, and the important effect considered by some to be caused by changes in the amount of cholesterol in the blood, led to a series of experiments on rabbits. This animal was chosen both because it develops the positive Wassermann reaction and because the feeding of large amounts of cholesterol causes an accumulation in the blood for several days, greater than in other animals. They were given 1.25 gm. per kilo of body weight. The Wassermann tests were all performed with an antihuman hemolytic system, using the technique of Craig—antigen consisting of an alcoholic extract of human heart, to which 0.4 per cent. of cholesterol was added. None of the rabbits showed a positive Wassermann test; all had been frequently tested during ten days previous to the experiment and found consistently negative.

SPINAL PUNCTURE IN DIAGNOSIS AND TREATMENT.

BASTROM (*Am. Jour. of Syph.*, Vol. V, No. 3, July, 1921) reviews the writings of 38 authors on the subject of spinal puncture. As regards treatment he feels that it is only in the various meningitides that any treatment by way of the spinal fluid has unquestioned value. That the seeming improvement in the intraspinal treatment of central nervous system syphilis can be just as well explained by the usual form of treatment which continues on into the time of using the intraspinal. He dismisses treatment by adding that in various pathological conditions of the central nervous system spinal drainage is of value. He then takes up the subject of diagnosis.

He states that in his opinion it is wanton practice to do routine spinal punctures or in cases where the diagnosis is not almost certain to be aided.

He mentions its diagnostic value in the meningitides, in meningismus, meningeal hemorrhage of the new-born, carbon dioxide poisoning, shell concussion, epidemic encephalitis, injecting air in subarachnoid space followed by x-ray in diagnosis, diagnosis of types of hydrocephalus.

Instances are cited in which infections of the meninges occurred following release of spinal fluid during septicaemia; syphilis and acute meningitis differ widely, yet are both septicaemias, therefore it seems possible that there is a real danger in puncturing during the septicaemic stage. The fact remains, however, that by spinal puncture in early syphilis the detection of early neurosyphilis is often made when otherwise overlooked.

Little of positive value seems to have been said of the curative value of spinal drainage.

[A. W. C.]

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THE ANNUAL DISCOURSE.

THE orator of the Massachusetts Medical Society set forth yesterday in convincing fashion the importance of viewing problems of the public health in a large way. As he truly says, health is an interest which concerns the community and not the individual. The Book of Leviticus, which laid down the rules of daily life for the preservation of the well-being of the body politic, was an early expression of a health law. In modern times we have witnessed an amazing spread of public health activities from the limited field of contagious diseases into varied spheres of preventive medicine.

Following an extensive study of health conditions in different parts of Europe after the Great War, the orator comments interestingly on what he saw in Poland, Lemberg, Bucharest and Tomsk, the war having furnished an unusual opportunity for the development of the international viewpoint. He pays a deserved tribute to the ability of the late Henry P. Davison in planning and furthering the organization of the Red Cross, sketches the birth of the League of Red Cross Societies, a permanent international clearing house for the promotion of the health of the world, and closes with a plea for unselfish international combi-

nation, urging all medical men to keep in touch with such a movement in medicine.

THE JOURNAL is glad to be able to present to its readers today the oration in full.

NEW REMEDIES.

NEARLY every mail brings to the physician circulars describing some new medicinal agent. Frequently the physician can tell at a glance that the product is of questionable value, or, from the way in which it is exploited, that it is really intended for the public and not for the profession; the physician is simply supposed to play the rôle of introducing one more "patent" medicine to the public. In many cases, however, the circulars describe painstaking and conscientious efforts on the part of American manufacturers to introduce new drugs of value, but the physician, not finding these drugs mentioned in standard textbooks and not remembering to have seen references to them in medical journals, is quite likely to pay no attention to them. Or the physician may have heard of new drugs (such as benzyl benzoate and analogous compounds, or of new local anesthetics, such as saligenin) and not be able to find a discussion of what they are, the indications and contraindications for their use, the dosage, etc. It is the purpose of "New and Non-Official Remedies" to give just such information.

It is the publication of the Council on Pharmacy and Chemistry through which this body annually presents the American medical profession with disinterested, critical information about the proprietary medicines which are offered to the profession, and which the Council deemed worthy of recognition. In addition to the descriptions of proprietary preparations the book contains descriptions of those non-official remedies which the Council deemed deserving of consideration by the profession.

To be admitted to "New and Non-Official Remedies" it is required that the quantitative composition of the article be declared, that the therapeutic claims made in marketing the article must be truthful, and that the preparation has, or gives promise of having, therapeutic value.

The descriptions of articles are based in part on investigations made by or under the direction of the Council and in part on information submitted by the manufacturer or his agent. However, statements made by those interested in the manufacture or marketing of an article are accepted only if they are supported by substantiating evidence or conform to generally accepted facts. Physicians, therefore, may use the book as a guide in determining whether or not a given proprietary prepara-

tion is indicated in the treatment of their patients. The interests of the patients and of the physicians themselves will be safeguarded by following the suggestions made in *The Journal of the American Medical Association* ("Helping the Council"; *J. A. M. A.*, Nov. 6, 1920, p. 1275) and by giving no consideration to any proprietary medicinal agent which has not been admitted to "New and Non-Official Remedies."

A valuable feature of the book is the grouping of preparations in classes. Each of these is introduced by a general discussion of the group. Thus the silver preparations, the iodine preparations, the arsenic preparations, the animal organ preparations, the biologic products, etc., each is preceded by a general, thoroughly up-to-date discussion of the particular group. These general articles compare the value of the products included in the group with similar pharmacopeial and other established drugs which it is proposed that these proprietary preparations shall supplant.

A glance at the preface of this volume shows that the book has been extensively revised. In fact, each edition of "New and Non-Official Remedies" is essentially a newly written book, brought up to date by those who speak with authority on the various phases of therapeutics.

Physicians who wish to know why a given proprietary is not described in "New and Non-Official Remedies" will find the "References to Proprietary and Unofficial Articles" not found in N. N. R. of much value. In this chapter (in the back of the book) are given references to published articles dealing with preparations which have not been accepted. These include references to the "Reports of the Council," to "Reports of the A. M. A. Chemical Laboratory," and to articles which have appeared in *The Journal of the American Medical Association*.

"New and Non-Official Remedies" should be in the hands of physicians. The book contains information about the newer materia medica which cannot be found in any other publication.

The book will be sent postpaid by the American Medical Association, 535 North Dearborn Street, Chicago, on receipt of one dollar and fifty cents.

In order to keep the book thoroughly up to date (i.e., between the annual revisions) supplements are issued, which may be obtained free by those who have the book. The material for these supplements is first published in *The Journal of the American Medical Association*. As an illustration of the value of these supplementary reports we may refer the reader to the report on the at present much discussed drug quinidine (*J. A. M. A.*, April 8, p. 1051). Only a specialist in cardiac diseases would

have been able to sift the various publications on the use of this drug and to have arrived at some definite conclusion as to its usefulness and possible dangers.

THE GORGAS MEMORIAL.

In the issue of January 19, 1922, *THE JOURNAL* published an announcement of plans formulated for the erection of the Gorgas memorial.

In order to arouse further interest in this project the subject will be presented to the members of the Massachusetts Medical Society at the annual meeting.

Drs. Fred B. Lund and Richard P. Strong will be given an opportunity to address the meeting and give detailed information relating to this memorial.

The subject is one which should interest every physician, and Massachusetts should show in a substantial way its appreciation of the work done by General Gorgas.

Miscellany.

REPORTS FROM THE INFORMATION SERVICE OF THE ROCKEFELLER FOUNDATION.

A REVIEW of the activities of the Rockefeller Foundation in 1920, written by its president, George E. Vincent, will be issued soon.

In the first instalment of the review, made public recently, the things done by the Foundation directly and through its departmental agencies—the International Health Board, the China Medical Board, and the Division of Medical Education—are summarized as follows:

During the year 1921 the Rockefeller Foundation continued a quarter million annual appropriation to the School of Hygiene and Public Health of Johns Hopkins University; pledged two millions to Harvard for a school of health; contributed to public health training in Czecho-Slovakia, Brazil and the United States; aided the Pasteur Institute of Paris to recruit and train personnel; promoted the cause of nurse training in America and Europe; underwrote an experimental pay clinic in the Cornell Medical School; formally opened a complete modern medical school and hospital in Peking; assisted 25 other medical centers in China; promised a million dollars for the Medical School of Columbia University; contracted to appropriate three and one-half millions for the rebuilding and reorganization of the Medical School and hospital of the Free University of Brussels; made surveys of medical schools

in Japan, China, the Philippines, Indo-China, Straits Settlements, Siam, India, Syria and Turkey; supplied American and British medical journals to 112 medical libraries on the continent; supplemented the laboratory equipment and supplies of five medical schools in Central Europe; defrayed the expenses of commissions from Great Britain, Belgium, Serbia and Brazil; provided 157 fellowships in hygiene, medicine, physics and chemistry, to representatives of 18 countries; continued a campaign against yellow fever in Mexico, Central America and South America; prosecuted demonstrations in the control of malaria in ten states; co-operated in hookworm work in 19 governmental areas; participated in rural health demonstrations in 77 American counties and in Brazil; neared the goal of transferring to French agencies an anti-tuberculosis organization in France; provided experts in medical education and public health for counsel and surveys in many parts of the world, and rendered sundry minor services to governments and voluntary societies.

A MEDICAL CENTER OPENED IN PEKING.

In September, 1921, were held the formal dedication exercises of the Peking Union Medical College, which the Foundation has built, staffed and equipped. The purposes of the college are to conduct a high-grade medical curriculum for undergraduates; to provide graduate training for laboratory workers, teachers and clinical specialists; to offer short courses for physicians; to furnish opportunities for research, especially in diseases peculiar to the Far East; and incidentally to extend popular knowledge of modern medicine and public health among the Chinese.

"The entire plant comprises for purposes of instruction, for faculty and student quarters, for mechanical services and storage, an area of about 25 acres and a total of 59 buildings. All the essential laboratories and lecture rooms, a hospital of 225 teaching beds, and an outpatient department are provided. It was necessary not only to build a medical school and hospital but to add to them the housing, water supply, sewerage, electric light and fuel gas services of a modern community."

YELLOW FEVER IN RETREAT.

President Vincent of the Rockefeller Foundation summarizes as follows the salient facts about yellow fever:

"Probably prevalent in Aztec times in Mexico and Central America; for last two centuries a dreaded scourge in Mexico, the West Indies, Central America and South America; frequently invading North American ports and causing thousands of deaths in the lower Mississippi Valley; fact of transmission by bite of female

Stegomyia mosquito established by American Army Medical Commission under Reed in Cuba, 1900-1901; Havana and Cuba freed from fever by Gorgas, who organized anti-mosquito measures, 1901-1902; example followed in Rio de Janeiro and Vera Cruz, 1903-1909; Panama Canal Zone successfully protected by same methods, 1904-1906; fear that canal traffic might carry disease to Far East and the confidence of Gorgas that fever could be eliminated led to appointment in 1916 by International Health Board of special commission to survey seed-beds of infection; Gorgas, head of commission, recommended a campaign of extermination; during delay caused by war, Noguchi of Rockefeller Institute of Medical Research visited Ecuador, Peru and Yucatan, isolated germ believed to be inciting cause of yellow fever, and prepared vaccine and serum, 1918-1920; yellow fever commissions organized in Central American countries, Colombia, Venezuela, Ecuador and Peru; intensive campaign, 1918-1919, under Connor eliminated disease from Guayaquil, the chief endemic center; 1920, commission sent to West Coast of Africa to investigate suspected areas; with occasional outbreaks, most of them traceable to places in Southern Mexico, the fever gradually gave ground; late in 1920 Mexican government organized commission and invited coöperation of International Health Board.

"Up to the beginning of 1921 experience with Noguchi's vaccine and serum indicated that the former when properly administered affords a marked protection against attacks of yellow fever, and that the latter, if it is used on or before the third day of the onset of the disease, reduces the mortality in a striking way. Data reported during last year confirm these conclusions. In Peru, of a group of 50 non-immune soldiers who were being sent into an infected district, 25 were vaccinated and 25 were left unvaccinated. Twenty of the latter group contracted yellow fever, while no case of the disease occurred among members of the former. Of 12 yellow fever patients in Belize, Honduras, who were treated with serum on or before the third day of the attack, 11 recovered. Until yellow fever is eradicated at its sources, the vaccine and serum promise to be most valuable means of prevention and cure.

"With the entrance of the Mexican government early in 1921 into the yellow fever campaign the prospects of successful advance brightened. The chief remaining sources of infection were attacked. During 1921, Ecuador, Honduras, Nicaragua and Costa Rica were not invaded by the disease. Guatemala reported no case after February 2; Salvador's last case was recorded February 15; by July 16 Peru was free, as was British Honduras in November. From Northern Brazil cases were

reported, but the situation was being dealt with by the government. It was gratifying to the Foundation to be able to advance money for continuing the campaign in Peru at a time when government funds were not quickly available. The advantages of having resources which could be immediately mobilized in an emergency were strikingly demonstrated. It was another example of the efficiency of a unified plan of cooperation. The outlook is encouraging; it is too early to proclaim a complete victory, but the purpose to push the fight against yellow fever remains steadfast."

GIFT TO HARVARD.

The Foundation in 1921 gave to Harvard University \$1,660,000 to permit the expansion of a course in health training into a school of public health.

"Harvard was the second American university to establish a course in public health training. The University of Pennsylvania was the pioneer. By joining forces with the Massachusetts Institute of Technology, Harvard was able to offer a fairly well-rounded curriculum of fundamental studies in preventive medicine and sanitary engineering. Tropical medicine was also given an important position which has been well maintained.

"More recently Harvard, through its medical school, took the lead in establishing courses of training in the field of industrial hygiene, which deals with the problems of fatigue, occupational disease, sanitation of mines and industrial plants, physical and medical examination, and care for transportation, factory and commercial workers, education in personal hygiene, mass athletics, recreation, etc.

"Admirable as the work in public health training, with its later emphasis on industrial hygiene, was, the Harvard authorities were not satisfied. They felt the need of adding departments which were lacking—for example, public health administration, epidemiology and vital statistics—and of strengthening other courses which were undermanned, inadequately equipped, and too meagerly supported. There was a desire to reorganize and unify the whole undertaking into a separate school of health which should have its own headquarters and teaching staff. It was estimated that to accomplish this and to provide for future growth additional funds to the amount of \$3,000,000 would be required. Toward this the Rockefeller Foundation appropriated \$1,660,000, and agreed if certain contingencies should arise during the next five years to supply \$500,000 more. The remainder of the total sum required was set aside or pledged by Harvard, and the organization of the new institution is well under way.

"While the Harvard School will include all

the fundamental subjects it will not in every respect duplicate the work at Johns Hopkins. There will be differences in specialization and emphasis, so that the two institutions together will enrich and widen the field of investigation and extend the facilities for training. Advanced students may well study both in Boston and in Baltimore."

REORGANIZATION OF THE BUREAU OF PREVENTABLE DISEASES OF THE DEPARTMENT OF HEALTH OF NEW YORK CITY.

For some time the work of this department has been administered under nineteen district units. According to *The Weekly Bulletin* of May 27, 1922, this plan has not been a success and the method has been changed. The various units are now concentrated in the headquarters of the department, thereby releasing more than 30 nurses for field work. Under the older system many of these nurses were engaged in administrative work, such as book-keeping and other office work.

The new plan contemplates intensification of tuberculous and other clinic services. It is estimated that the reorganization will add to the resources of the department service as much service as would be secured by the expenditure of \$45,000.

UNITED STATES DEPARTMENT OF LABOR, CHILDREN'S BUREAU.

THE appointment of Dr. Ethel M. Watters of San Francisco as consultant in the administration of the Sheppard-Towner Maternity Act is announced by the United States Department of Labor through the Children's Bureau. Dr. Watters has been since 1919 director of the Bureau of Child Hygiene in the California State Board of Health, and is a well-known pediatrician. She becomes a member of the staff of the Federal Children's Bureau, which is charged with the duty of administering, in cooperation with the states, the federal funds appropriated for promoting the welfare and hygiene of maternity and infancy. All but six of the states have to date accepted the provisions of the act. In most states the administration will be in charge of the child hygiene divisions of the state boards of health. Plans under which the individual states will administer the funds locally vary with local needs and resources.

Dr. Watters studied medicine at Leland Stanford, Jr., and Johns Hopkins universities, receiving her degree from the latter. In addi-

tion to her services as director of the Bureau of Child Hygiene she has been sanitarian of the Bureau of Social Hygiene in the California State Board of Health and physician to various children's homes and institutions in San Francisco. She has been a contributor to medical and health journals.

SMITHSONIAN INSTITUTION TO HOUSE PUBLIC HEALTH EXHIBIT.

THE National Committee on Exhibits Showing Advances in Sanitary Science has recently been formed in Washington, D. C., for the purpose of collecting and preparing material for a great popular public health exhibit in the capital. The members of the committee include: Surgeon-General H. S. Cumming, United States Public Health Service, chairman; Dr. D. B. Armstrong, National Health Council; Miss Mabel T. Boardman, American Red Cross; Surgeon-General M. W. Ireland, United States Army Medical Corps; Dr. Victor C. Vaughan, National Research Council; Dr. C. D. Walcott, Smithsonian Institution; James A. Tobey, National Health Council, secretary.

Space for the proposed exhibit has been placed at the disposal of the committee by the Smithsonian Institution, which is visited by more than half a million persons annually. Plans are under way to install exhibit material secured from official and voluntary health agencies. The secretary's office is in the national headquarters of the American Red Cross at Washington, D. C.

A BAD LAW.

In Tasmania the name of a person may be removed from the Register by an order of the Supreme Court or judge thereof, on application by summons taken out in that behalf by the Medical Council, for fraud, felony or misdemeanor or infamous conduct in any professional respect. The name may subsequently be restored by order of the Supreme Court if the Court so determine, and any person whose name has been removed has the right of appeal to the full court. The Tasmanian act, however, contains several clauses of such an extraordinary nature that we cannot refrain from reproducing them in full. Intending practitioners in Tasmania will do well to note them. These clauses are as follows:

"If any registered medical practitioner in active practice, without reasonable excuse (the proof of such reasonable excuse being upon him), refuses or fails to consult with or render professional assistance, in consultation, to any other registered medical practitioner seeking such advice or assistance, he shall be guilty

of an offence and shall on conviction forfeit and pay for each offence a penalty of not less than 50 pounds nor more than 200 pounds.

"The foregoing expression 'reasonable excuse' shall not include any resolution or by-law or any agreement of any company, association or body of persons whatsoever, whether verbal or written."—*Medical Journal of Australia*.

RED CROSS NURSE DISPATCHED BY CHAPTER AIDS EPIDEMIC FIGHT.

DURING a recent epidemic of typhoid at Gilmore, Idaho, a mining camp 17 miles from Salmon, headquarters of the Lemhi County Chapter, the Red Cross came to the assistance of the stricken camp and through the efforts of the public health nurse saved the lives of all but one out of 18 victims. The nurse, Miss Minnie Lunney, took an assistant with her to Gilmore, and all drugs and disinfectants were furnished by the Red Cross chapter.

With the nearest physician 70 miles away and the snow four or five feet deep, the nurse made daily visits to the homes of the patients. As a result the community was brought to a full realization of the value of the public health nurse and an appreciation of what the Red Cross means in time of trouble.—*The Red Cross Courier*.

NOTE.—The Red Cross should not assume that all these lives were saved by the nurse. There was story enough without making extravagant claims.—Editor.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

THE month of May showed an increase of work quite unprecedented for the season of the year, May being usually the first month to register the lightening of work, which is characteristic of summer and due to the decrease in respiratory diseases.

Work in May.—There were 2615 new patients admitted, 103 more than in April, while a total of 26,851 visits was made. This increase is attributable not to more cases of any one disease but to a few more cases of many diseases.

Diseases.—There were 91 new patients with pneumonia, a slight increase over those of last month; 132 with measles, a few more than were admitted during April and 56 more than those of May last year.

There were also more cases of cancer and of accidents, i.e., burns, traumatisms, fractures and sprains. Again the increase in cancer patients confirms a recent comment on this fact.

There were 103 new cases of diseases of the digestive system, showing a slight increase over those of last month and a marked one over those of last May. There were two new cases of typhoid fever and one new case of encephalitis lethargica.

Preventive Work.—There were more prenatal visits and visits to well babies and well children—these latter follow-up visits for the baby and child health clinics—than were made during any other month of the year, and more well-baby-and-child visits than during May of last year.

The value of this preventive work is shown by the very strikingly low death rate among the babies.—*Monthly Health Bulletin.*

DR. J. W. BABCOCK.

It is a pleasure to find distinguished Americans appreciated by our foreign brethren, and the following tribute paid to Dr. Babcock is so well deserved that it is fitting to reproduce the obituary editorial notice which appeared in *Revista Pellagologica Italiana*.

"With renewed sorrow we announce the death of Dr. J. W. Babcock of Columbia, S. C.

"He was the first to recognize pellagra in the United States and to identify it with Italian pellagra; but he had to struggle long and suffer many bitter checks before the truth announced by him was imposed on the American medical world and pellagra came to form part of official pathology.

"A convinced follower of the theories of Lombroso, he never abandoned them, accepting, however, in part and in so far as true, the newer and most recent doctrines.

"It is due to his studies, to his researches, to his tenacious propaganda with word and pen in articles in the press and in scientific reviews, to his communications before the annual congresses of the American Medical Association or in the biennial meetings of the National Association for the Study of Pellagra, founded and directed by him, that the United States Public Health Service has vigorously enforced and conducted the fight against the new scourge that was already dealing its blows in the southern states, achieving in little more than a decade the present comforting results.

"Justly do the journals of America exalt Dr. J. W. Babcock, the pioneer and the humanitarian, whose fame will grow with time, as well as the rare and perfect gentleman, beloved and esteemed by all.

"We who for so many, many years have had with him—so remote in space, so near in affection—pure ideal scientific relations—we bow reverently in memory of the lost friend, and to him we send the flower of remembrance."

OFFICERS OF THE NEW ENGLAND ROENTGEN RAY SOCIETY.

At the annual meeting of the New England Roentgen Ray Society, held at the Harvard Club, June 2, 1922, the following officers were elected for the years 1922 and 1923: President, Ariel W. George, M.D., Boston; vice-president, Ernest L. Davis, M.D., Springfield; secretary-treasurer, Adelbert S. Merrill, M.D., Boston; executive committee, Alexander S. MacMillan, M.D., chairman, Boston; Isaac Gerber, M.D., Providence; Arthur Heublein, M.D., Hartford.

ROYAL CANCER HOSPITAL, GLASGOW.

RECENT contributions to the fund administered by this hospital, amounting to £800, have been received. The Bellahouston Trustees have promised £100 per year for five years. At the present time the funds available only permit of the chemical branch of the plant being used. It is estimated that £1500 should be available each year in order to enable the whole department to operate.

The work of this hospital has been along research lines under the supervision of a committee of which Professors Robert Muir and D. Noël Paton are members.

ELECTION OF DR. R. G. HARRISON.

DR. ROSS G. HARRISON of Yale University has been elected an honorary member of the Royal Academy of Medicine of Turin.—*Science*, June 2, 1922.

A BENEFICENT LAW.

SOME years ago Massachusetts enacted a law providing for the reporting of cases of ophthalmia neonatorum. During 1921 no case of blindness resulted from this disease.

IODINE AS A PREVENTATIVE OF GOITER.

In the June number of *Minnesota Medicine* appears an editorial in which iodine is advocated as a preventative of goiter. In the argument the prevalence of goiter in Switzerland, the Great Lakes basin and the Cascade Mountain regions is spoken of as furnishing comparatively iodine-free water. Because of the elimination of iodine from table salt through present-day refining the beneficial effects of iodine, according to the writer, are lost. The

work of Marius and Kimball, which appeared in the *A. M. A. Journal*, Vol. 77, No. 14, is cited to show that after the administration of iodine to 2190 Ohio pupils only five goiters developed, although 595 goiters developed in some 7320 untreated cases. Klinger of Zurich substantiated these conclusions.

With these favorable results a warning is given concerning the use of iodine in exophthalmic goiter, for it is well known that over-active goiters are not suitable cases for the administration of iodine.

AN EPOCHAL STEP.

The New England Division has taken one of the most important steps toward thoughtful promotion of public health work since the peace program was inaugurated, by establishing an advisory service for the benefit of Chapters and Branches.

The Division Manager has been fortunate in winning the interest and active coöperation of leading members of the medical profession, including the chief health officer of each of the five New England States in the Division territory.

Through these men the Chapters and Branches will have the benefit of the best thought available in the field of public health work and the advantage of such guidance as will enable them to function in harmony with the policies of the health authorities of the States, cities and towns, and with the medical profession. This will be of inestimable value in directing Red Cross health work toward the fulfilment of clearly demonstrated needs.—*The Red Cross Courier*, March 4, 1922.

HELP FOR LEPERS.

It is reported that Surgeon-General Cumming is authority for the statement that the hypodermic injection of the ethyl esters of chaulmoogra oil has a beneficial effect on leprosy. One hundred and eighty-three patients have been paroled from the Kalihi Investigating Station in Hawaii, as apparently cured. Only 8% have returned for further treatment. The ethyl esters do not have the irritating effect of the oil itself, and the efficiency seems to be much greater.

SIR BERKELEY MOYNIHAN has presented to the University of Leeds an endowment for an annual award of the Leeds Medical School of a gold medal to the best student of the year in medicine and surgery. In accordance with the donor's wish, the medal will bear the name of William Hey, in commemoration of the work of that great Leeds surgeon.—*The Medical Press*.

Correspondence.

RURAL HEALTH AND HEALTH ENGINEERING SERVICE.

DEERFIELD, MASS., May 29, 1922.

Mr. Editor:

Manufacturers have contributed to Inaugurate county farm bureau leagues, knowing that better agriculture means better food supplies and so affects their labor cost.² These farming development organizations have been increasingly concerned with health service in rural districts, realizing that success in agriculture is directly connected with human physical efficiency, and more and more business and industrial leaders are becoming interested in rural health in the neighborhood of their shops and factories.

This State has about one physician to every 700, whereas Franklin County has but one to every 925 of its population. The County has then 25 per cent. less medical engineers than the State average, and about one-half of the towns embracing about one-half of the area are without doctors; not only is service in sickness impaired further through the distances and difficulties of travel, but the preventive endeavors and stabilizing influences of such potential health agents are lost to such towns through lack of local and neighborly associations.

The natural advantages of rural life favor health conditions, the comparative isolation of a doctor tries his mettle and favors independence of judgment, but the closer contacts with men of his profession, the ready access to hospital and other facilities and educational advantages are sacrificed. There are marked contrasts between our County Seat and isolated hill-towns and many persons needing constant specialized professional or hospital service are denied it.

Towns in this end of the State which formerly supported one or more doctors are now without any or else served by men whose age and vigor must be at times overtaxed. Some towns where non-resident physicians formerly held office hours are now without that service. We need here and elsewhere throughout rural New England more good county, local and community engineers, a quality of sympathy and understanding which comes only from close association with and experience in such sections. The desk chair reach from metropolitan centers and the laboratory habit of an academic control atmosphere develop friction and insulation in their methods of approach. They do not wholesomely orient themselves to gaze the rural temper and their contacts are insulated by either a patronizing atmosphere or the bearing of a policeman.

The Rural Health and Medical Service Committee, a voluntary organization of persons who have sensed the needs of rural health betterment and who have had under consideration for over a year these problems, has made some canvass of the field and desires to have in hand a sum of money to extend this canvass and inaugurate a program to promote this necessary service.

Program:

1. To have a bureau of placement of physicians for small towns.
2. To develop sentiment in communities as to the value of physicians as constructive health engineers. This can be done through newspapers, talks at Farm Bureau and other community meetings, and by personal interviews and approaches with interested local spirits and potential leaders.
3. To encourage communities to make larger appropriations for public health work in schools

and elsewhere—raise amounts paid for physical examinations to a mutual self-respecting basis.

4. Arrangement of consultation clinics as frequently as may be practicable to (a) provide for better treatment of especially difficult cases; (b) to supply a need on the part of physicians who do not and who cannot go far away from their own field to meet with specialists of the kind that they could consult with to a mutual advantage.

5. Efforts to promote closer and reciprocal relations between hospital and physicians of the region about who would like to avail themselves of the range of facilities and equipment which such hospitals possess. This should be done in a manner which will safeguard the best standards of work there obtainable, give encouragement to all constructive professional endeavors in equitable and self-respecting ways and mean coöperation of a character to best advance and extend service to the public.

6. Helping individuals who need hospital care to get located and awaken in this way community sentiment to the larger service of the hospital and their responsibilities and obligations for its upkeep.

7. As sectional needs may arise in the future to aid country physicians in the establishment of hospitals where they can have better surveillance of their own patients, be insured their rightful fees, and obtain expert service and advice as they may need.

8. To consult with agents and officials of towns, or of church and charitable trusteeships as to possible modification and adaptation of property, trusts or policies to serve health interests. To study data of records and reports in the endeavor to learn any intent or purpose which would accord with a more modern interpretation of the use of such trusts and promote the broadest possible service for present and pressing needs.

From canvass already made I have found there is some church and parsonage property adaptable or convertible in the furtherance of rural health betterment. Also there exists trust funds whose original purpose is antiquated which might be drafted for health purposes. As instance a certain fund was left to build an old ladies' home, but before a start was made, the greater desirability for a library appeared and the court was asked to permit the use of funds in that manner and that privilege was granted as the need for such a home did not appear to exist. Another town which was left a bequest, the interest of which was to be used to buy books, got permission to use its funds for a building. These instances are cited merely to show the apparent inclination of the court to aid towns in making their bequest funds available for the greatest public good, and undoubtedly many such funds exist which progressive towns and citizens utilized in such ways.

Doctors, as other men, are no better than they are compelled or can afford or are encouraged to be. School physicians are paid only \$15 a year in some places. Ten cents per pupil for a physical examination makes for a poor investment. A remuneration of from \$3 to \$6 apiece might help to solve the problem of securing a resident physician in many a town wishing such, and would insure the quality of service. What town could not make an office hour a week arrangement with a doctor and thus help to put consultation privileges within reach of citizens needing this service? School children are required to have physical examinations. Youths in rural regions show a high percentage of physical defects.

Under cover of periodic examinations, the conscientious, far-seeing physician has an unusual chance to do constructive health coaching. The work with school children can be utilized to open the way for bringing home to the parents the need of such reconstructive service for their own self-protection, and

this ultimately means a broadening of opportunities for doctors and making rural communities attractive fields for modern practice.

PAUL W. GOLDSBURY, M.D.

DOSES PROPOSED FOR THE UNITED STATES PHARMACOPOEIA, TENTH REVISION.

PHILADELPHIA, PA., MAY 25, 1922.

Mr. Editor:

The sub-committee on Posology of the United States Pharmacopoeia, Tenth Revision, has submitted the report on doses for the new Pharmacopoeia. At the suggestion of the Chairman, Dr. Torald Sollmann, a list of those doses which are new or have been changed are herewith enclosed that they be given publicity in the medical and pharmaceutical press.

Will you kindly submit this material to your readers, if in your judgment, they would be interested in the doses of the forthcoming Pharmacopoeia.

Respectfully submitted,

E. FULLERTON COOK, Chairman.

The following list represents changes in the U. S. P. IX doses or doses for newly admitted substances as proposed for inclusion in the new Pharmacopoeia. All other doses remain as at present official. These are submitted for the information of physicians and pharmacists. Any comments should be sent to E. Fullerton Cook, 636 So. Franklin Square, Philadelphia, Pa.

Acidum Benzoicum	1 Gm. (15 grains)
Antimonii et Potassii Tartras	0.003 Gm. (1/20 grain)
Apomorphinae Hydrochloridum	Expectorant, 0.002 (1/30 grain). Emetic, Hypodermic 0.005 Gm. (1/12 grain)
Asafoetida	0.2 Gm. (3 grains)
Atropina	0.0006 Gm. (1/100 grain)
Atropinae Sulphas	0.0006 Gm. (1/100 grain)
Bismuthi Betanaphtholas	1 Gm. (15 grains)
Bismuthi Subcarbonas	1 Gm. (15 grains)
Bismuthi Subgallas	1 Gm. (15 grains)
Bismuthi Subnitras	1 Gm. (15 grains)
Bismuthi Subsalcylas	1 Gm. (15 grains)
Calcii Chloridum	1 Gm. (15 grains)
Calcii Lactas	1 Gm. (15 grains)
Calumba	1 Gm. (15 grains)
Camphora	By mouth or Hypodermic 0.2 Gm. (3 grains)
Ceril Oxalax	0.6 Gm. (10 grains)
Cubeba	2 Gm. (30 grains)
Colocynthis	0.1 Gm. (1½ grains)
Digitalis	0.1 Gm. (1½ grains)
Extractum Aconiti	0.015 Gm. (¼ grain)
Extractum Cannabis	0.015 Gm. (¼ grain)
Extractum Cascarae	
Sagradæ	0.3 Gm. (½ grain)
Extractum Fells Bovis	0.4 Gm. (6 grains)
Extractum Hyosciami	0.06 Gm. (5/6 grain)
Extractum Rhei	0.5 Gm. (8 grains)
Extractum Stramonii	0.02 Gm. (1/3 grain)
Fluidextractum Aconiti	0.06 cc. (1/10 minims)
Fluidextractum Digitalis	0.1 Gm. (1½ minims)
Fluidextractum Ipecacuanhae	Expectorant 0.06 (1 minim) Emetic 1 cc. (15 minims)
Fluidextractum Lobelliae	0.1 cc. (1½ minims)
Fluidextractum Nuclei Vomicae	0.1 cc. (1½ minims)
Fluidextractum Podophylli	0.3 cc. (5 minims)
Fluidextractum Spigelliae	4 cc. (1 fluidrachm)
Fluidextractum Tritici	8 cc. (2 fluidrachms)

Fluidextractum Zingiberis	0.5 cc. (8 minims)	Potassi Iodidum	0.3 Gm. (5 grains)
Glyceritum Acidi Tannici	2.5 cc. (40 minims)	Antiluetic 2 Gm.	(30 grains)
Hexamethylenamina	0.3 Gm. (5 grains)	Potassii Nitras	0.3 Gm. (5 Grains)
Hydrargyri Chloridum		Pulvis Aromaticus	0.3 Gm. (5 Grains)
Corrosivum	0.004 Gm. (1/15 grain)	Pulvis Ipecacuanhae et	
Hydrargyri Chloridum		Opii	0.3 Gm. (5 Grains)
Mite	Laxative 0.15 Gm. (2½ grains)	Sanguinaria	0.1 Gm. (1½ grains)
Hydrargyri Iodidum		Scopolaminae Hydro-	
Rubrum	0.004 Gm. (1/15 grain)	bromidum	0.0005 Gm. (1/120 grain)
Hydrargyri Salicylas	Intramuscular 0.06 Gm.	Senna	2 Gm. (30 grains)
	(1/10 grain) twice a week.	Sodii Glycerophosphas	0.3 Gm. (5 grains)
		Sodii Iodidum	0.3 Gm. (5 Grains)
		Antiluetic 2 Gm.	(30 grains)
Hyoscyaminae Hydro-		Spiritus Anisi	1 Gm. (15 grains)
bromidum	0.0006 Gm. (1/100 grain)	Spiritus Juniperi	1 cc.
Hyoscyamus	0.2 Gm. (3 grains)	Spiritus Menthae	
Infusum Digitalis	6 cc. (1½ fluidrachms)	Piperitae	1 cc. (15 minims)
Infusum Sennae		Spiritus Menthae	
Compositum	30 cc. (1 fluidounce)	Viridis	1 cc. (15 minims)
Iodum	0.01 Gm. (1/6 grain)	Stramonium	0.75 Gm. (12 grains)
Ipecacuanha	Expectorant 0.06 Gm. (1 grain)	Strophanthinum	Daily, mouth or vein, 0.0005 Gm. (1/120 grain)
Liquor Sodii Glycero-	Emetic 1 Gm. (15 grains)		
phosphatis	0.6 cc. (10 minims)	Strychnina	0.002 Gm. (1/30 grain)
Lobelia	0.1 Gm. (1½ grains)	Strychninae Nitras	0.002 Gm. (1/30 grain)
Magma Magnesiae	Antacid, 4 cc. (1 fluidrachm)	Strychninae Sulphas	0.002 Gm. (1/30 grain)
	Laxative (for children)	Syrupus Ipecacuanhae	0.75 cc. (12 minims)
	15 cc. (4 fluidrachms)		Emetic 15 cc. (4 fluidrachms)
Magnesii Carbonas	Antacid 0.6 Gm. (10 grains)	Syrupus Picis Liquidae	10 cc. (2½ fluidrachms)
	Laxative 8 Gm. (2 fluidrachms)	Syrupus Pruni	
	Antacid 0.25 Gm. (4 grains)	Virginianae	10 cc. (2½ fluidrachms)
	Laxative 3 Gm. (45 grains)	Syrupus Sennae	8 cc. (2 fluidrachms)
Magnesii Oxidum		Syrupus Tolutanus	10 cc. (2½ fluidrachms)
	Antacid 0.25 Gm. (4 grains)	Syrupus Zingiberis	10 cc. (2½ fluidrachms)
	Laxative 3 Gm. (45 grains)	Thymol	0.125 Gm. (2 grains)
Magnesii Oxidum			Anthelmintic 2 Gm. (30 grains)
Ponderosum	Antacid 0.25 Gm. (4 grains)		Divided into 3 doses.
	Laxative 3 Gm. (45 grains)	Thyroideum Siccum	0.06 Gm. (1 grain)
Massa Hydrargyri	0.3 Gm. (5 grains)	Tinctura Aconiti	0.6 cc. (10 minims)
Mistura Glycyrrhizae		Tinctura Belladonnae	0.6 cc. (10 minims)
Composita	4 cc. (1 fluidrachm)	Tinctura Cannabis	1 cc. (15 minims)
Morphinae Hydrochlori-		Tinctura Digitalis	1 cc. (15 minims)
dum	0.01 Gm. (1/6 grain)	Tinctura Ferri Chloridi	0.7 cc. (10 minims)
Morphinae Sulphas	0.01 Gm. (1/6 grain)	Tinctura Gelsemii	0.3 cc. (5 minims)
Nux Vomica	0.1 Gm. (1½ grains)	Tinctura Myrrhae	2 cc. (30 minims)
Oleoresina Aspidii	Single Dose, once a day, 4 Gm. (1 drachm)	Tinctura Nucis Vomicae	1 cc. (15 minims)
		Tinctura Opii	0.6 cc. (10 minims)
Oleoresina Capsici	0.015 Gm. (¼ grain)	Tinctura Opil Deodorati	0.6 cc. (10 minims)
Oleum Anisi	0.1 cc. (1½ minims)	Tinctura Stramonii	0.75 cc. (10 minims)
Oleum Aurantii	0.1 cc. (1½ minims)	Tinctura Ventrif Viridis	1 cc. (15 minims)
Oleum Cari	0.1 cc. (1½ minims)	Valeriana	0.75 Gm. (12 grains)
Oleum Carophylli	0.1 cc. (1½ minims)	Venerum Viride	0.1 Gm. (1½ grains)
Oleum Cassiae	0.1 cc. (1½ minims)	Zingiber	0.5 Gm. (8 grains)
Oleum Chenopodii	1.0 cc. (15 minims)		
Oleum Coriandri	0.1 cc. (1½ minims)		
Oleum Foeniculi	0.1 cc. (1½ minims)		
Oleum Juniperi	0.1 cc. (1½ minims)		
Oleum Lavandulae	0.1 cc. (1½ minims)		
Oleum Limonis	0.1 cc. (1½ minims)		
Oleum Menthae			
Piperitae	0.1 cc. (1½ minims)		
Oleum Menthae Viridis	0.1 cc. (1½ minims)		
Oleum Myristicae	0.03 cc. (½ minims)		
Oleum Pimentae	0.1 cc. (1½ minims)		
Oleum Rosmarini	0.1 cc. (1½ minims)		
Oleum Sassafras	0.1 cc. (1½ minims)		
Oleum Thym	0.1 cc. (1½ minims)		
Paraldehydum	4 cc. (fluidrachm)		
Phosphorus	0.0006 Gm. (1/100 grain)		
Pilocarpinae Hydro-			
chloridum	0.005 Gm. (1/12 grain)		
Pilocarpinae Nitras	0.005 Gm. (1/12 grain)		

(It should be remembered that doses were introduced into the Pharmacopoeia at the request of many physicians and pharmacists. After careful consideration, it was held advisable to introduce only "average approximate" doses, i.e., doses such as are in widespread use by the profession and which are ordinarily effective. The Pharmacopoeia expressly states that there is no intention of suggesting to the physician that these doses are obligatory or should not be exceeded whenever in his judgment this is advisable. These doses are of much assistance to the pharmacist also, and have helped to protect patients against errors.—Ed.)

NEW HAMPSHIRE MEDICAL SOCIETY.

Mr. Editor:

As a delegate from the Massachusetts Medical Society to the sister State of New Hampshire, I

wish to render an acknowledgment of the honor conferred and report presence at the specified conclave.

On May 17th and 18th, Dr. Stone of Haverhill and I visited Concord, N. H., in attendance at the One Hundred Thirty-first Annual Meeting of the New Hampshire Medical Society.

There was present a large gathering of medical brethren, large in comparison with the total membership of the association. The enthusiasm at the meetings was real, and topics were freely discussed. The program was somewhat protracted conformably to the two days' limitation of time.

The President's address dealt with local hospital problems. Some of the papers proffered may be mentioned, but upon all there cannot be dilation.

Interesting data presented by Dr. Butterfield, of Concord, emphasizing the numerous causes of intestinal obstruction, aroused much discussion, pro and con, as to whether wisdom dictated speedy exploratory operation of a dilatory deference to cardinal symptoms, thus allowing a nearer approach to a more exact pre-operative diagnosis.

Dr. Edwin Place, of Boston, gave a most interesting talk on his specialty of contagious diseases, mentioning the use of convalescents' sera employed in scarlet fever and measles cases.

Dr. Frank Richardson of Boston delivered a scholarly résumé of all anesthetic agents employed in minor surgery.

A paper on hygienic habits and sanitary customs relative to school children was frankly discoursed. The speaker maintained that the school-age and pre-school-age conditions were largely responsible for the deplorable showing of United States adolescents in the physical examinations of the recent war draft.

Facts relative to the foundation of the Dartmouth Medical School, and the questionable maintenance of the same, were presented by Dr. Frederick P. Lord, of Hanover. It was not a presentation for propaganda purposes, but the manifestation of a desire to allow the people of New Hampshire, laity and profession, to become forewarned as to exact conditions, so that a wise decision may be made as to Dartmouth Medical School attaining a Class "A" standard, or becoming a defunct institution.

Not to mention, at least, one more address would seem inadequate to the occasion, for Dr. Francis C. Wood of the Institute of Cancer Research of New York City convincingly arrayed his problems to date and gave information most valuable to all.

The social features in addition to the requisites for the general meetings were most commendable, and the brethren were always very hospitable and friendly.

Cordially yours,

W. E. CURRIER,

Member Massachusetts Medical Society.

NOTICE OF EXAMINATION FOR ENTRANCE INTO THE REGULAR CORPS OF THE UNITED STATES PUBLIC HEALTH SERVICE.

Examination of candidates for entrance into the Regular Corps of the United States Public Health Service will be held at the following-named places on the dates specified:

At Washington, D. C., July 10, 1922; at New York City, July 10, 1922; at Chicago, Illinois, July 10, 1922; at San Francisco, Cal., July 10, 1922, at New Orleans, La., July 10, 1922.

Candidates must be not less than twenty-three nor more than thirty-two years of age, and they must have been graduated in medicine at some reputable medical college, and have had one year's

hospital experience or two years' professional practice. They must pass satisfactorily, oral, written, and clinical tests before a board of medical officers and undergo a physical examination.

Successful candidates will be recommended for appointment by the President with the advice and consent of the Senate.

Requests for information or permission to take this examination should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

H. S. CUMMING, Surgeon General.

UNITED STATES CIVIL SERVICE EXAMINATIONS.

Toxicologist, \$3,600 to \$5,000 a year. Associate Toxicologist, \$2,500 to \$3,600 a year. Assistant Toxicologist, \$1,800 to \$2,500 a year. Receipt of applications to close July 3, 1922.

The United States Civil Service Commission announces open competitive examinations for these positions.

PATHOLOGY AND DIAGNOSIS OF TUMORS.—A course in the pathology and diagnosis of tumors will be given by Professor William H. Woglom, M.D., at the Institute of Cancer Research, 1145 Amsterdam Avenue, in connection with the summer session of Columbia University, New York, beginning on July 10, 1922, and lasting for six weeks. Classes will be held daily, except on Saturday, from 2 to 4 p. m. The fee for the course will be \$46.00. Application should be made to the Director of the Summer Session, Columbia University, New York.

DR. FRANK R. SEDGLEY has removed from Fox Hills Hospital, Staten Island, New York, to U. S. Veterans' Hospital, No. 65, St. Paul, Minnesota.

NATIONAL BOARD OF MEDICAL EXAMINERS.

The dates for the next two examinations of the National Board of Medical Examiners are as follows: Part I and II, June 19, 20, 21, 22, and 23, 1922. Part I and II, September 25, 26, 27, 28, and 29, 1922.

Applications for the June examination should be in the Secretary's office not later than May 15th, and for the September examination not later than June 1st. Application blanks and circulars of information may be had by writing to the Secretary, Dr. J. S. Rodman, 1310 Medical Arts Building, Philadelphia.

RECENT DEATH.

DR. FRANK ELMORE CONSTANS, of Brockton, Mass., died suddenly Monday, May 29, 1922, at his home, of angina pectoris, from which he had suffered occasionally the past three years. His death will be greatly felt in the city because he had practiced there thirty-five years and had acquired a large and lucrative business.

He was born in Blue Earth, Minnesota, August 2, 1866, was a graduate of Carleton College and the Hahnemann Medical School of Philadelphia. He was a member of the Massachusetts Medical Society, also of the American Medical Association. He is survived by his wife and adopted daughter.